



Amendment No. 2
To
Contract No. NA170000058
For
Flow Monitoring Services
Between
R/JN Group, Inc.
and the
City of Austin

- 1.0 The City hereby exercises this extension option for the subject contract. This extension option will be December 21, 2020 through December 20, 2021. Three options will remain.
- 2.0 The total contract amount is increased by 1,350,000.00 by this extension period. The total contract authorization is recapped below:

Action	Action Amount	Total Contract Amount
Initial Term: 12/21/2016 – 12/20/2020	\$5,200,000.00	\$5,200,000.00
Amendment No. 1: Contract Amended 07/24/2017	\$0.00	\$5,200,000.00
Amendment No. 2: Option 1 – Extension 12/21/2020 – 12/20/2021	\$1,350,000.00	\$6,500,000.00

- 3.0 MBE/WBE goals do not apply to this contract.
- 4.0 By signing this Amendment the Contractor certifies that the vendor and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the GSA List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Austin.
- 5.0 All other terms and conditions remain the same.

BY THE SIGNATURES affixed below, this amendment is hereby incorporated into and made a part of the above-referenced contract.

Sign/Date:

Den Jackson / 9/17/2020

Printed Name: Daniel Jackson
Authorized Representative

R/JN Group, Inc.
12160 Abrams Road, Suite 400
Dallas, Texas 75243-4524
(972) 327-4300
asaarty@rjnmail.com

Sign/Date:

**Matthew
Duree**

Matthew Duree
Procurement Manager

City of Austin
Purchasing Office
124 W. 8th Street, Ste. 310
Austin, Texas 78701

Digitally signed by
Matthew Duree
Date: 2020.12.07
14:24:25 -06'00'



Amendment No. 1
to
Contract No. NA170000058
for
Flow Monitoring Services
between
RJN Group Inc
and the
City of Austin, Texas

- 1.0 The City hereby amends the above referenced contract to clarify the Scope of Work (SOW) with the following:
- On all temporary meters, the Contractor's flow stabilization report shall consist of an initial verification at installation and a second verification the next business day after installation.
 - On all temporary meters, when there is not a need for flow monitoring data, the City will have the option to deactivate the meters. Deactivating the meter is defined as turning the meter off, during which time there will not be any data, verification points or maintenance.
 - When the temporary meters are deactivated, there will be no monthly charge for processing of data which is associated with bid items #12, #13, #22, and #23.
 - A two week notice will be provided for deactivating and reactivating the temporary flow meters.
- 2.0 The City hereby amends the above referenced contract to adjust the billing rates for Bid Item #13 to \$450.00 a month.
- 3.0 The following Scope sections from the original contract are referenced above and remain unchanged with this amendment:
- Section 5.12 For all temporary meters, the Contractor shall perform verification for each FMS at installation, every two weeks, and at removal.
 - Section 10. 1 For temporary meters, within two (2) weeks of receiving the notice to proceed from the City, the Contractor shall demonstrate that flow has stabilized and submit a Flow Stabilization Report to the City for review and comment.


- Section 10.1 For temporary meters, after the Flow Stabilization Report is submitted to the City, the next calendar day may be a start date for eligible payment request consideration if agreed upon by the City and the Contractor.

5.0 The total Contract amount remains unchanged.

6.0 ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

BY THE SIGNATURE(S) affixed below, this Amendment is hereby incorporated and made a part of the above referenced contract.

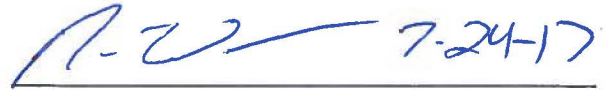
Signature & Date:



Printed Name: Daniel Jackson
Authorized Representative

RJN Group, Inc.
12160 Abrams Rd Ste 400
Dallas, TX 75243

Signature & Date:



Matthew Duree, Procurement Supervisor
City of Austin Purchasing Office



City of Austin

Purchasing Office, Financial Services Department

P.O. Box 1088, Austin, TX 78767

October 16, 2016

Jeffrey Plymale
Vice President/Chief Operating Officer
jplymale@rjnmail.com
RJN Group, Inc.
111 West Anderson Lane,
Ste. D203A
Austin, TX 78752

Dear Mr. Plymale:

The Austin City Council approved the execution of a contract with your company for RFP EAD0128, Flow Monitoring in accordance with the referenced solicitation.

Responsible Department:	Austin Water
Department Contact Person:	Kevin Koeller
Department Contact Email Address:	Kevin.Koeller@austinwater.com
Department Contact Telephone:	512-972-2055
Project Name:	Flow Monitoring
Contractor Name:	RJN Group, Inc.
Contract Number:	NA170000058
Contract Period:	12/21/2016 – 12/20/2020
Dollar Amount	\$5,200,000
Extension Options:	4 x 12 month (\$1,350,000 per option)
Requisition Number:	RQM 2200 16032400342-1
Solicitation Type & Number:	EAD0128
Agenda Item Number:	30
Council Approval Date:	December 1, 2016

Thank you for your interest in doing business with the City of Austin. If you have any questions regarding this contract, please contact the person referenced under Department Contact Person.

Sincerely,

Georgia Billela
Senior Buyer
City of Austin
Purchasing Office

cc: Darrell Richmond
Kevin Koeller

**CONTRACT BETWEEN THE CITY OF AUSTIN ("City")
AND
RJN GROUP, INC. ("Contractor")
for
Wastewater Flow Monitoring Services
Contract Number: NA170000058**

The City accepts the Contractor's Offer (as referenced in Section 1.1.3 below) for the above requirement and enters into the following Contract.

This Contract is between RJN Group, Inc. having offices at 111 West Anderson Lane, Suite D203A, Austin, Texas 78752 and the City, a home-rule municipality incorporated by the State of Texas, and is effective as of the date executed by the City ("Effective Date").

Capitalized terms used but not defined herein have the meanings given them in Solicitation Number Request for Proposal EAD0128.

1.1 This Contract is composed of the following documents:

1.1.1 This Contract

1.1.2 The City's Solicitation, Request for Proposal, EAD0128 including all documents incorporated by reference

1.1.3 RJN Group, Inc's Offer, dated July 11, 2016, including subsequent clarifications:

- RJN Group, Inc's clarification response document dated August 11, 2016 attached hereto as Exhibit A
- RJN Group, Inc's Best and Final Offer document dated September 30, 2016 attached hereto as Exhibit B.

1.2 Order of Precedence. Any inconsistency or conflict in the Contract documents shall be resolved by giving precedence in the following order:

1.2.1 This Contract

1.2.2 The City's Solicitation as referenced in Section 1.1.2, including all documents incorporated by reference

1.2.3 The Contractor's Offer as referenced in Section 1.1.3, including subsequent clarifications attached hereto as Exhibits A and B.

1.3 Term of Contract. The Contract will be in effect for an initial term of forty eight (48) months and may be extended thereafter for up to four (4) additional twelve (12) month periods, subject to the approval of the Contractor and the City Purchasing Officer or his designee. See the Term of Contract provision in Section 0400 for additional Contract requirements.

1.4 Compensation. The Contractor shall be paid a total not-to-exceed amount of \$5,200,000 for the initial Contract term and \$1,350,000 for each extension option for a total contract amount not-to-exceed \$10,600,000. Payment shall be made upon successful completion of services or delivery of goods as outlined in each individual Delivery Order.

1.5 **Quantity of Work.** There is no guaranteed quantity of work for the period of the Contract and there are no minimum order quantities. Work will be on an as needed basis as specified by the City for each Delivery Order

1.6 **Clarifications and Additional Agreements.** The following are incorporated into the Contract.

1.6.1 Minority and Women Owned Business Enterprise (MBE/WBE) Procurement Program

1.6.1.1 All City procurements are subject to the City's Minority-Owned and Women-Owned Business Enterprise Procurement Program found at Chapters 2-9A, 2-9B, 2-9C and 2-9D of the City Code. The Program provides Minority-Owned and Women-Owned Business Enterprises (MBEs/WBEs) full opportunity to participate in all City contracts.

1.6.1.2 In accordance with the City's Minority-Owned and Women-Owned Business Enterprise Procurement Program, the City will monitor compliance information regarding the use of certified MBE/WBE Firm(s) listed on the Contractor's Compliance Plan (Exhibit F). The Contractor shall submit electronically to the City's Contract Manager, no later than the 10th calendar day of every month, reports on progress toward meeting the MBE and WBE participation goals. The Contractor shall also email or fax SMBR Reports to the SMBR representative assigned to the project. The Contractor may be asked to report and appear before the City's MBE/WBE and Small Business Advisory Committee, the MBE/WBE and Small Business Council Sub-committee and/or Austin City Council regarding MBE and WBE participation, when feasible. City Staff will provide the Contractor at least one (1) month notice if reporting requests are made by Austin City Council or Committees. Electronic versions of the required reports can also be found at www.austintexas.gov/SMBR.

1.6.2 Section 0815-Living Wages Contractor Certification attached to Contractor's proposal is deleted and replaced by Exhibits C-Revised Section 0815, and Exhibit D-Section 0820-Living Wage Employee Certification.

1.6.3 Price Sheet attached to Best and Final Offer dated September 30, 2016 is stricken in its entirety and replaced by Final Price Sheet attached hereto as Exhibit E.

This Contract (including any Exhibits) constitutes the entire agreement of the parties regarding the subject matter of this Contract and supersedes all prior and contemporaneous agreements and understandings, whether written or oral, relating to such subject matter. This Contract may be altered, amended, or modified only by a written instrument signed by the duly authorized representatives of both parties.

In witness whereof, the parties have caused a duly authorized representative to execute this Contract on the date set forth below.

RJN GROUP, INC.

P. Jeffrey Plymate

Printed Name of Authorized Person

[Signature]

Signature

Executive Vice President / COO

Title:

12/20/16

Date:

CITY OF AUSTIN

C. Danielle Lord

Printed Name of Authorized Person

[Signature]

Signature

Corp. Purchasing Manager

Title:

12/21/16

Date:

List of Exhibits:

- Exhibit A – RJN Group, Inc's clarification response document dated August 11, 2016
- Exhibit B – RJN Group, Inc's Best and Final Offer document dated September 30, 2016
- Exhibit C – Revised Section 0815-Living Wages Contractor Certification
- Exhibit D – Section 0820-Living Wage Employee Certification
- Exhibit E - Best and Final Offer Price Sheet-December 13, 2016
- Exhibit F - Contractor's Compliance Plan

JULY 19, 2016

A Request for Proposal

WASTEWATER FLOW MONITORING SERVICES SOLICITATION NO. EAD0128

PREPARED FOR THE

City of Austin, Texas

Prepared by



111 W. Anderson Lane, Suite D203A
Austin, Texas 78752
(512) 451-8204

WWW.RJN.COM

Teaming Partner

ADS, LLC

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TAB 1

CITY OF AUSTIN

PURCHASING DOCUMENTS



CITY OF AUSTIN, TEXAS
Purchasing Office
REQUEST FOR PROPOSAL (RFP)
OFFER SHEET

SOLICITATION NO: EAD0128

DATE ISSUED: 6/20/16

REQUISITION NO.: 16032400342

COMMODITY CODE: 96169

COMMODITY/SERVICE DESCRIPTION: Wastewater Flow Monitoring Services

PRE-PROPOSAL CONFERENCE TIME AND DATE: 6/29/16, 10 AM – 11 AM. Call in: 512-974-9300 Code: 810786

LOCATION: MUNICIPAL BUILDING, 124 W 8th STREET
 RM 308, AUSTIN, TEXAS 78701

FOR CONTRACTUAL AND TECHNICAL ISSUES CONTACT THE FOLLOWING AUTHORIZED CONTACT PERSON(S):

Erin D'Vincent
 Senior Buyer Specialist
Phone: (512) 974-3070
E-Mail: erin.dvincent@austintexas.gov

Danielle Lord
 Corporate Purchasing Manager
Phone: (512) 974-2298
E-Mail: danielle.lord@austintexas.gov

PROPOSAL DUE PRIOR TO: 7/12/16, 2:00 PM Central

PROPOSAL CLOSING TIME AND DATE: 7/12/16, 2:00 PM Central

LOCATION: MUNICIPAL BUILDING, 124 W 8th STREET
 RM 308, AUSTIN, TEXAS 78701

LIVE SOLICITATION CLOSING ONLINE: For RFP's, only the names of respondents will be read aloud

For information on how to attend the Solicitation Closing online, please select this link:

<http://www.austintexas.gov/departments/bid-opening-webinars>

When submitting a sealed Offer and/or Compliance Plan, use the proper address for the type of service desired, as shown below:

Address for US Mail (Only)	Address for Fedex, UPS, Hand Delivery or Courier Service
City of Austin	City of Austin, Municipal Building
Purchasing Office-Response Enclosed for Solicitation # EAD0128	Purchasing Office-Response Enclosed for Solicitation # EAD0128
P.O. Box 1088	124 W 8 th Street, Rm 308
Austin, Texas 78767-8845	Austin, Texas 78701
	Reception Phone: (512) 974-2500

NOTE: Offers must be received and time stamped in the Purchasing Office prior to the Due Date and Time. It is the responsibility of the Offeror to ensure that their Offer arrives at the receptionist's desk in the Purchasing Office prior to the time and date indicated. Arrival at the City's mailroom, mail terminal, or post office box will not constitute the Offer arriving on time. See Section 0200 for additional solicitation instructions.

All Offers (including Compliance Plans) that are not submitted in a sealed envelope or container will not be considered.

SUBMIT 1 ORIGINAL AND 6 ELECTRONIC COPIES OF YOUR RESPONSE IN PDF ON A FLASH DRIVE

*****SIGNATURE FOR SUBMITTAL REQUIRED ON PAGE 3 OF THIS DOCUMENT*****

This solicitation is comprised of the following required sections. Please ensure to carefully read each section including those incorporated by reference. By signing this document, you are agreeing to all the items contained herein and will be bound to all terms.

SECTION NO.	TITLE	PAGES
0100	STANDARD PURCHASE DEFINITIONS	*
0200	STANDARD SOLICITATION INSTRUCTIONS	*
0300	STANDARD PURCHASE TERMS AND CONDITIONS	*
0400	SUPPLEMENTAL PURCHASE PROVISIONS	9
0500	SCOPE OF WORK	15
0510	EXCEPTIONS	1
0600	PROPOSAL PREPARATION INSTRUCTIONS & EVALUATION FACTORS	5
0601	PRICE PROPOSAL	4
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0800	NON-DISCRIMINATION CERTIFICATION	*
0805	NON-SUSPENSION OR DEBARMENT CERTIFICATION	*
0810	NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING CERTIFICATION	*
0815	LIVING WAGES CONTRACTOR CERTIFICATION–Complete and return	1
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Attachment A	Meter Locations	6
Attachment B	Charts & Graphs	15
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Attachment D	Contract Flow Meter Map	1

*** Documents are hereby incorporated into this Solicitation by reference, with the same force and effect as if they were incorporated in full text. The full text versions of the * Sections are available on the Internet at the following online address:**

http://www.austintexas.gov/financeonline/vendor_connection/index.cfm#STANDARDBIDDOCUMENTS

If you do not have access to the Internet, you may obtain a copy of these Sections from the City of Austin Purchasing Office located in the Municipal Building, 124 West 8th Street, Room #308 Austin, Texas 78701; phone (512) 974-2500. Please have the Solicitation number available so that the staff can select the proper documents. These documents can be mailed, expressed mailed, or faxed to you.

INTERESTED PARTIES DISCLOSURE

In addition, Section 2252.908 of the Texas Government Code requires the successful offeror to complete a Form 1295 “Certificate of Interested Parties” that is signed and notarized for a contract award requiring council authorization. The “Certificate of Interested Parties” form must be completed on the Texas Ethics Commission website, printed, signed and submitted to the City by the authorized agent of the Business Entity with acknowledgment that disclosure is made under oath and under penalty of perjury prior to final contract execution.

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

The undersigned, by his/her signature, represents that he/she is submitting a binding offer and is authorized to bind the respondent to fully comply with the solicitation document contained herein. The Respondent, by submitting and signing below, acknowledges that he/she has received and read the entire document packet sections defined above including all documents incorporated by reference, and agrees to be bound by the terms therein.

Company Name: RJN Group, Inc.

Company Address: 111 West Anderson Lane, Suite D203A

City, State, Zip: Austin, Texas 78752

Federal Tax ID No. [REDACTED]

Printed Name of Officer or Authorized Representative: P. Jeffrey Plymale

Title: Vice President/Chief Operating Officer

Signature of Officer or Authorized Representative: 

Date: 7/11/2016

Email Address: jplymale@rjnmail.com

Phone Number: (972) 437-4300

*** Proposal response must be submitted with this Offer sheet to be considered for award**

**CITY OF AUSTIN
PURCHASING OFFICE
STANDARD PURCHASE TERMS AND CONDITIONS**

By submitting an Offer in response to the Solicitation, the Contractor agrees that the Contract shall be governed by the following terms and conditions. Unless otherwise specified in the Contract, Sections 3, 4, 5, 6, 7, 8, 20, 21, and 36 shall apply only to a Solicitation to purchase Goods, and Sections 9, 10, 11 and 22 shall apply only to a Solicitation to purchase Services to be performed principally at the City's premises or on public rights-of-way.

1. **CONTRACTOR'S OBLIGATIONS**. The Contractor shall fully and timely provide all Deliverables described in the Solicitation and in the Contractor's Offer in strict accordance with the terms, covenants, and conditions of the Contract and all applicable Federal, State, and local laws, rules, and regulations.
2. **EFFECTIVE DATE/TERM**. Unless otherwise specified in the Solicitation, this Contract shall be effective as of the date the contract is signed by the City, and shall continue in effect until all obligations are performed in accordance with the Contract.
3. **CONTRACTOR TO PACKAGE DELIVERABLES**: The Contractor will package Deliverables in accordance with good commercial practice and shall include a packing list showing the description of each item, the quantity and unit price. Unless otherwise provided in the Specifications or Supplemental Terms and Conditions, each shipping container shall be clearly and permanently marked as follows: (a) The Contractor's name and address, (b) the City's name, address and purchase order or purchase release number and the price agreement number if applicable, (c) Container number and total number of containers, e.g. box 1 of 4 boxes, and (d) the number of the container bearing the packing list. The Contractor shall bear cost of packaging. Deliverables shall be suitably packed to secure lowest transportation costs and to conform with requirements of common carriers and any applicable specifications. The City's count or weight shall be final and conclusive on shipments not accompanied by packing lists.
4. **SHIPMENT UNDER RESERVATION PROHIBITED**: The Contractor is not authorized to ship the Deliverables under reservation and no tender of a bill of lading will operate as a tender of Deliverables.
5. **TITLE & RISK OF LOSS**: Title to and risk of loss of the Deliverables shall pass to the City only when the City actually receives and accepts the Deliverables.
6. **DELIVERY TERMS AND TRANSPORTATION CHARGES**: Deliverables shall be shipped F.O.B. point of delivery unless otherwise specified in the Supplemental Terms and Conditions. Unless otherwise stated in the Offer, the Contractor's price shall be deemed to include all delivery and transportation charges. The City shall have the right to designate what method of transportation shall be used to ship the Deliverables. The place of delivery shall be that set forth in the block of the purchase order or purchase release entitled "Receiving Agency".
7. **RIGHT OF INSPECTION AND REJECTION**: The City expressly reserves all rights under law, including, but not limited to the Uniform Commercial Code, to inspect the Deliverables at delivery before accepting them, and to reject defective or non-conforming Deliverables. If the City has the right to inspect the Contractor's, or the Contractor's Subcontractor's, facilities, or the Deliverables at the Contractor's, or the Contractor's Subcontractor's, premises, the Contractor shall furnish, or cause to be furnished, without additional charge, all reasonable facilities and assistance to the City to facilitate such inspection.
8. **NO REPLACEMENT OF DEFECTIVE TENDER**: Every tender or delivery of Deliverables must fully comply with all provisions of the Contract as to time of delivery, quality, and quantity. Any non-complying tender shall constitute a breach and the Contractor shall not have the right to substitute a conforming tender; provided, where the time for performance has not yet expired, the Contractor may notify the City of the intention to cure and may then make a conforming tender within the time allotted in the contract.
9. **PLACE AND CONDITION OF WORK**: The City shall provide the Contractor access to the sites where the Contractor is to perform the services as required in order for the Contractor to perform the services in a timely and efficient manner, in accordance with and subject to the applicable security laws, rules, and regulations. The Contractor acknowledges that it has satisfied itself as to the nature of the City's service requirements and specifications, the location and essential characteristics of the work sites, the quality and quantity of materials, equipment, labor and facilities necessary to perform the services, and any other condition or state of fact which could in any way affect performance of the Contractor's obligations under the contract. The Contractor hereby releases and holds the City

**CITY OF AUSTIN
PURCHASING OFFICE
STANDARD PURCHASE TERMS AND CONDITIONS**

harmless from and against any liability or claim for damages of any kind or nature if the actual site or service conditions differ from expected conditions.

10. WORKFORCE

- A. The Contractor shall employ only orderly and competent workers, skilled in the performance of the services which they will perform under the Contract.
- B. The Contractor, its employees, subcontractors, and subcontractor's employees may not while engaged in participating or responding to a solicitation or while in the course and scope of delivering goods or services under a City of Austin contract or on the City's property .
 - i. use or possess a firearm, including a concealed handgun that is licensed under state law, except as required by the terms of the contract; or
 - ii. use or possess alcoholic or other intoxicating beverages, illegal drugs or controlled substances, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job.
- C. If the City or the City's representative notifies the Contractor that any worker is incompetent, disorderly or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms, or has possessed or was under the influence of alcohol or drugs on the job, the Contractor shall immediately remove such worker from Contract services, and may not employ such worker again on Contract services without the City's prior written consent.

- 11. COMPLIANCE WITH HEALTH, SAFETY, AND ENVIRONMENTAL REGULATIONS:** The Contractor, its Subcontractors, and their respective employees, shall comply fully with all applicable federal, state, and local health, safety, and environmental laws, ordinances, rules and regulations in the performance of the services, including but not limited to those promulgated by the City and by the Occupational Safety and Health Administration (OSHA). In case of conflict, the most stringent safety requirement shall govern. The Contractor shall indemnify and hold the City harmless from and against all claims, demands, suits, actions, judgments, fines, penalties and liability of every kind arising from the breach of the Contractor's obligations under this paragraph.

12. INVOICES:

- A. The Contractor shall submit separate invoices in duplicate on each purchase order or purchase release after each delivery. If partial shipments or deliveries are authorized by the City, a separate invoice must be sent for each shipment or delivery made.
- B. **Proper Invoices must include a unique invoice number, the purchase order or delivery order number and the master agreement number if applicable, the Department's Name, and the name of the point of contact for the Department.** Invoices shall be itemized and transportation charges, if any, shall be listed separately. A copy of the bill of lading and the freight waybill, when applicable, shall be attached to the invoice. The Contractor's name and, if applicable, the tax identification number on the invoice must exactly match the information in the Vendor's registration with the City. Unless otherwise instructed in writing, the City may rely on the remittance address specified on the Contractor's invoice.
- C. Invoices for labor shall include a copy of all time-sheets with trade labor rate and Deliverables order number clearly identified. Invoices shall also include a tabulation of work-hours at the appropriate rates and grouped by work order number. Time billed for labor shall be limited to hours actually worked at the work site.
- D. Unless otherwise expressly authorized in the Contract, the Contractor shall pass through all Subcontract and other authorized expenses at actual cost without markup.
- E. Federal excise taxes, State taxes, or City sales taxes must not be included in the invoiced amount. The City will furnish a tax exemption certificate upon request.

**CITY OF AUSTIN
PURCHASING OFFICE
STANDARD PURCHASE TERMS AND CONDITIONS**

13. PAYMENT:

- A. All proper invoices received by the City will be paid within thirty (30) calendar days of the City's receipt of the Deliverables or of the invoice, whichever is later.
- B. **If payment is not timely made, (per paragraph A), interest shall accrue on the unpaid balance at the lesser of the rate specified in Texas Government Code Section 2251.025 or the maximum lawful rate; except, if payment is not timely made for a reason for which the City may withhold payment hereunder, interest shall not accrue until ten (10) calendar days after the grounds for withholding payment have been resolved.**
- C. If partial shipments or deliveries are authorized by the City, the Contractor will be paid for the partial shipment or delivery, as stated above, provided that the invoice matches the shipment or delivery.
- D. The City may withhold or set off the entire payment or part of any payment otherwise due the Contractor to such extent as may be necessary on account of:
 - i. delivery of defective or non-conforming Deliverables by the Contractor;
 - ii. third party claims, which are not covered by the insurance which the Contractor is required to provide, are filed or reasonable evidence indicating probable filing of such claims;
 - iii. failure of the Contractor to pay Subcontractors, or for labor, materials or equipment;
 - iv. damage to the property of the City or the City's agents, employees or contractors, which is not covered by insurance required to be provided by the Contractor;
 - v. reasonable evidence that the Contractor's obligations will not be completed within the time specified in the Contract, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
 - vi. failure of the Contractor to submit proper invoices with all required attachments and supporting documentation; or
 - vii. failure of the Contractor to comply with any material provision of the Contract Documents.
- E. Notice is hereby given of Article VIII, Section 1 of the Austin City Charter which prohibits the payment of any money to any person, firm or corporation who is in arrears to the City for taxes, and of §2-8-3 of the Austin City Code concerning the right of the City to offset indebtedness owed the City.
- F. Payment will be made by check unless the parties mutually agree to payment by credit card or electronic transfer of funds. The Contractor agrees that there shall be no additional charges, surcharges, or penalties to the City for payments made by credit card or electronic funds transfer.
- G. The awarding or continuation of this contract is dependent upon the availability of funding. The City's payment obligations are payable only and solely from funds Appropriated and available for this contract. The absence of Appropriated or other lawfully available funds shall render the Contract null and void to the extent funds are not Appropriated or available and any Deliverables delivered but unpaid shall be returned to the Contractor. The City shall provide the Contractor written notice of the failure of the City to make an adequate Appropriation for any fiscal year to pay the amounts due under the Contract, or the reduction of any Appropriation to an amount insufficient to permit the City to pay its obligations under the Contract. In the event of non or inadequate appropriation of funds, there will be no penalty nor removal fees charged to the City.

- 14. TRAVEL EXPENSES:** All travel, lodging and per diem expenses in connection with the Contract for which reimbursement may be claimed by the Contractor under the terms of the Solicitation will be reviewed against the City's Travel Policy as published and maintained by the City's Controller's Office and the Current United States General Services Administration Domestic Per Diem Rates (the "Rates") as published and maintained on the Internet at:

<http://www.gsa.gov/portal/category/21287>

**CITY OF AUSTIN
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No amounts in excess of the Travel Policy or Rates shall be paid. All invoices must be accompanied by copies of detailed itemized receipts (e.g. hotel bills, airline tickets). No reimbursement will be made for expenses not actually incurred. Airline fares in excess of coach or economy will not be reimbursed. Mileage charges may not exceed the amount permitted as a deduction in any year under the Internal Revenue Code or Regulations.

15. FINAL PAYMENT AND CLOSE-OUT:

- A. If an MBE/WBE Program Compliance Plan is required by the Solicitation, and the Contractor has identified Subcontractors, the Contractor is required to submit a Contract Close-Out MBE/WBE Compliance Report to the Project manager or Contract manager no later than the 15th calendar day after completion of all work under the contract. Final payment, retainage, or both may be withheld if the Contractor is not in compliance with the requirements of the Compliance Plan as accepted by the City.
- B. The making and acceptance of final payment will constitute:
 - i. a waiver of all claims by the City against the Contractor, except claims (1) which have been previously asserted in writing and not yet settled, (2) arising from defective work appearing after final inspection, (3) arising from failure of the Contractor to comply with the Contract or the terms of any warranty specified herein, (4) arising from the Contractor's continuing obligations under the Contract, including but not limited to indemnity and warranty obligations, or (5) arising under the City's right to audit; and
 - ii. a waiver of all claims by the Contractor against the City other than those previously asserted in writing and not yet settled.

16. SPECIAL TOOLS & TEST EQUIPMENT: If the price stated on the Offer includes the cost of any special tooling or special test equipment fabricated or required by the Contractor for the purpose of filling this order, such special tooling equipment and any process sheets related thereto shall become the property of the City and shall be identified by the Contractor as such.

17. RIGHT TO AUDIT:

- A. The Contractor agrees that the representatives of the Office of the City Auditor or other authorized representatives of the City shall have access to, and the right to audit, examine, or reproduce, any and all records of the Contractor related to the performance under this Contract. The Contractor shall retain all such records for a period of three (3) years after final payment on this Contract or until all audit and litigation matters that the City has brought to the attention of the Contractor are resolved, whichever is longer. The Contractor agrees to refund to the City any overpayments disclosed by any such audit.
- B. The Contractor shall include section a. above in all subcontractor agreements entered into in connection with this Contract.

18. SUBCONTRACTORS:

- A. If the Contractor identified Subcontractors in an MBE/WBE Program Compliance Plan or a No Goals Utilization Plan the Contractor shall comply with the provisions of Chapters 2-9A, 2-9B, 2-9C, and 2-9D, as applicable, of the Austin City Code and the terms of the Compliance Plan or Utilization Plan as approved by the City (the "Plan"). The Contractor shall not initially employ any Subcontractor except as provided in the Contractor's Plan. The Contractor shall not substitute any Subcontractor identified in the Plan, unless the substitute has been accepted by the City in writing in accordance with the provisions of Chapters 2-9A, 2-9B, 2-9C and 2-9D, as applicable. No acceptance by the City of any Subcontractor shall constitute a waiver of any rights or remedies of the City with respect to defective Deliverables provided by a Subcontractor. If a Plan has been approved, the Contractor is additionally required to submit a monthly Subcontract Awards and Expenditures Report to the Contract Manager and the Purchasing Office Contract Compliance Manager no later than the tenth calendar day of each month.

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- B. Work performed for the Contractor by a Subcontractor shall be pursuant to a written contract between the Contractor and Subcontractor. The terms of the subcontract may not conflict with the terms of the Contract, and shall contain provisions that:
- i. require that all Deliverables to be provided by the Subcontractor be provided in strict accordance with the provisions, specifications and terms of the Contract;
 - ii. prohibit the Subcontractor from further subcontracting any portion of the Contract without the prior written consent of the City and the Contractor. The City may require, as a condition to such further subcontracting, that the Subcontractor post a payment bond in form, substance and amount acceptable to the City;
 - iii. require Subcontractors to submit all invoices and applications for payments, including any claims for additional payments, damages or otherwise, to the Contractor in sufficient time to enable the Contractor to include same with its invoice or application for payment to the City in accordance with the terms of the Contract;
 - iv. require that all Subcontractors obtain and maintain, throughout the term of their contract, insurance in the type and amounts specified for the Contractor, with the City being a named insured as its interest shall appear; and
 - v. require that the Subcontractor indemnify and hold the City harmless to the same extent as the Contractor is required to indemnify the City.
- C. The Contractor shall be fully responsible to the City for all acts and omissions of the Subcontractors just as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract shall create for the benefit of any such Subcontractor any contractual relationship between the City and any such Subcontractor, nor shall it create any obligation on the part of the City to pay or to see to the payment of any moneys due any such Subcontractor except as may otherwise be required by law.
- D. The Contractor shall pay each Subcontractor its appropriate share of payments made to the Contractor not later than ten (10) calendar days after receipt of payment from the City.

19. WARRANTY-PRICE:

- A. The Contractor warrants the prices quoted in the Offer are no higher than the Contractor's current prices on orders by others for like Deliverables under similar terms of purchase.
- B. The Contractor certifies that the prices in the Offer have been arrived at independently without consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such fees with any other firm or with any competitor.
- C. In addition to any other remedy available, the City may deduct from any amounts owed to the Contractor, or otherwise recover, any amounts paid for items in excess of the Contractor's current prices on orders by others for like Deliverables under similar terms of purchase.

20. **WARRANTY – TITLE:** The Contractor warrants that it has good and indefeasible title to all Deliverables furnished under the Contract, and that the Deliverables are free and clear of all liens, claims, security interests and encumbrances. The Contractor shall indemnify and hold the City harmless from and against all adverse title claims to the Deliverables.

21. **WARRANTY – DELIVERABLES:** The Contractor warrants and represents that all Deliverables sold the City under the Contract shall be free from defects in design, workmanship or manufacture, and conform in all material respects to the specifications, drawings, and descriptions in the Solicitation, to any samples furnished by the Contractor, to the terms, covenants and conditions of the Contract, and to all applicable State, Federal or local laws, rules, and regulations, and industry codes and standards. Unless otherwise stated in the Solicitation, the Deliverables shall be new or recycled merchandise, and not used or reconditioned.

- A. Recycled Deliverables shall be clearly identified as such.

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- B. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law; and any attempt to do so shall be without force or effect.
 - C. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the date of acceptance of the Deliverables or from the date of acceptance of any replacement Deliverables. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand either repair the non-conforming Deliverables, or replace the non-conforming Deliverables with fully conforming Deliverables, at the City's option and at no additional cost to the City. All costs incidental to such repair or replacement, including but not limited to, any packaging and shipping costs, shall be borne exclusively by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach of warranty, but failure to give timely notice shall not impair the City's rights under this section.
 - D. If the Contractor is unable or unwilling to repair or replace defective or non-conforming Deliverables as required by the City, then in addition to any other available remedy, the City may reduce the quantity of Deliverables it may be required to purchase under the Contract from the Contractor, and purchase conforming Deliverables from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such Deliverables from another source.
 - E. If the Contractor is not the manufacturer, and the Deliverables are covered by a separate manufacturer's warranty, the Contractor shall transfer and assign such manufacturer's warranty to the City. If for any reason the manufacturer's warranty cannot be fully transferred to the City, the Contractor shall assist and cooperate with the City to the fullest extent to enforce such manufacturer's warranty for the benefit of the City.
22. **WARRANTY – SERVICES:** The Contractor warrants and represents that all services to be provided the City under the Contract will be fully and timely performed in a good and workmanlike manner in accordance with generally accepted industry standards and practices, the terms, conditions, and covenants of the Contract, and all applicable Federal, State and local laws, rules or regulations.
- A. The Contractor may not limit, exclude or disclaim the foregoing warranty or any warranty implied by law, and any attempt to do so shall be without force or effect.
 - B. Unless otherwise specified in the Contract, the warranty period shall be at least one year from the Acceptance Date. If during the warranty period, one or more of the above warranties are breached, the Contractor shall promptly upon receipt of demand perform the services again in accordance with above standard at no additional cost to the City. All costs incidental to such additional performance shall be borne by the Contractor. The City shall endeavor to give the Contractor written notice of the breach of warranty within thirty (30) calendar days of discovery of the breach warranty, but failure to give timely notice shall not impair the City's rights under this section.
 - C. If the Contractor is unable or unwilling to perform its services in accordance with the above standard as required by the City, then in addition to any other available remedy, the City may reduce the amount of services it may be required to purchase under the Contract from the Contractor, and purchase conforming services from other sources. In such event, the Contractor shall pay to the City upon demand the increased cost, if any, incurred by the City to procure such services from another source.
23. **ACCEPTANCE OF INCOMPLETE OR NON-CONFORMING DELIVERABLES:** If, instead of requiring immediate correction or removal and replacement of defective or non-conforming Deliverables, the City prefers to accept it, the City may do so. The Contractor shall pay all claims, costs, losses and damages attributable to the City's evaluation of and determination to accept such defective or non-conforming Deliverables. If any such acceptance occurs prior to final payment, the City may deduct such amounts as are necessary to compensate the City for the diminished value of the defective or non-conforming Deliverables. If the acceptance occurs after final payment, such amount will be refunded to the City by the Contractor.
24. **RIGHT TO ASSURANCE:** Whenever one party to the Contract in good faith has reason to question the other party's intent to perform, demand may be made to the other party for written assurance of the intent to perform. In the event

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that no assurance is given within the time specified after demand is made, the demanding party may treat this failure as an anticipatory repudiation of the Contract.

25. **STOP WORK NOTICE:** The City may issue an immediate Stop Work Notice in the event the Contractor is observed performing in a manner that is in violation of Federal, State, or local guidelines, or in a manner that is determined by the City to be unsafe to either life or property. Upon notification, the Contractor will cease all work until notified by the City that the violation or unsafe condition has been corrected. The Contractor shall be liable for all costs incurred by the City as a result of the issuance of such Stop Work Notice.
26. **DEFAULT:** The Contractor shall be in default under the Contract if the Contractor (a) fails to fully, timely and faithfully perform any of its material obligations under the Contract, (b) fails to provide adequate assurance of performance under Paragraph 24, (c) becomes insolvent or seeks relief under the bankruptcy laws of the United States or (d) makes a material misrepresentation in Contractor's Offer, or in any report or deliverable required to be submitted by the Contractor to the City.
27. **TERMINATION FOR CAUSE:** In the event of a default by the Contractor, the City shall have the right to terminate the Contract for cause, by written notice effective ten (10) calendar days, unless otherwise specified, after the date of such notice, unless the Contractor, within such ten (10) day period, cures such default, or provides evidence sufficient to prove to the City's reasonable satisfaction that such default does not, in fact, exist. The City may place Contractor on probation for a specified period of time within which the Contractor must correct any non-compliance issues. Probation shall not normally be for a period of more than nine (9) months, however, it may be for a longer period, not to exceed one (1) year depending on the circumstances. If the City determines the Contractor has failed to perform satisfactorily during the probation period, the City may proceed with suspension. In the event of a default by the Contractor, the City may suspend or debar the Contractor in accordance with the "City of Austin Purchasing Office Probation, Suspension and Debarment Rules for Vendors" and remove the Contractor from the City's vendor list for up to five (5) years and any Offer submitted by the Contractor may be disqualified for up to five (5) years. In addition to any other remedy available under law or in equity, the City shall be entitled to recover all actual damages, costs, losses and expenses, incurred by the City as a result of the Contractor's default, including, without limitation, cost of cover, reasonable attorneys' fees, court costs, and prejudgment and post-judgment interest at the maximum lawful rate. All rights and remedies under the Contract are cumulative and are not exclusive of any other right or remedy provided by law.
28. **TERMINATION WITHOUT CAUSE:** The City shall have the right to terminate the Contract, in whole or in part, without cause any time upon thirty (30) calendar days' prior written notice. Upon receipt of a notice of termination, the Contractor shall promptly cease all further work pursuant to the Contract, with such exceptions, if any, specified in the notice of termination. The City shall pay the Contractor, to the extent of funds Appropriated or otherwise legally available for such purposes, for all goods delivered and services performed and obligations incurred prior to the date of termination in accordance with the terms hereof.
29. **FRAUD:** Fraudulent statements by the Contractor on any Offer or in any report or deliverable required to be submitted by the Contractor to the City shall be grounds for the termination of the Contract for cause by the City and may result in legal action.
30. **DELAYS:**
- A. The City may delay scheduled delivery or other due dates by written notice to the Contractor if the City deems it is in its best interest. If such delay causes an increase in the cost of the work under the Contract, the City and the Contractor shall negotiate an equitable adjustment for costs incurred by the Contractor in the Contract price and execute an amendment to the Contract. The Contractor must assert its right to an adjustment within thirty (30) calendar days from the date of receipt of the notice of delay. Failure to agree on any adjusted price shall be handled under the Dispute Resolution process specified in paragraph 48. However, nothing in this provision shall excuse the Contractor from delaying the delivery as notified.
- B. Neither party shall be liable for any default or delay in the performance of its obligations under this Contract if, while and to the extent such default or delay is caused by acts of God, fire, riots, civil commotion, labor disruptions, sabotage, sovereign conduct, or any other cause beyond the reasonable control of such Party. In

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the event of default or delay in contract performance due to any of the foregoing causes, then the time for completion of the services will be extended; provided, however, in such an event, a conference will be held within three (3) business days to establish a mutually agreeable period of time reasonably necessary to overcome the effect of such failure to perform.

31. INDEMNITY:

A. Definitions:

- i. "Indemnified Claims" shall include any and all claims, demands, suits, causes of action, judgments and liability of every character, type or description, including all reasonable costs and expenses of litigation, mediation or other alternate dispute resolution mechanism, including attorney and other professional fees for:
 - (1) damage to or loss of the property of any person (including, but not limited to the City, the Contractor, their respective agents, officers, employees and subcontractors; the officers, agents, and employees of such subcontractors; and third parties); and/or
 - (2) death, bodily injury, illness, disease, worker's compensation, loss of services, or loss of income or wages to any person (including but not limited to the agents, officers and employees of the City, the Contractor, the Contractor's subcontractors, and third parties),
- ii. "Fault" shall include the sale of defective or non-conforming Deliverables, negligence, willful misconduct, or a breach of any legally imposed strict liability standard.

B. THE CONTRACTOR SHALL DEFEND (AT THE OPTION OF THE CITY), INDEMNIFY, AND HOLD THE CITY, ITS SUCCESSORS, ASSIGNS, OFFICERS, EMPLOYEES AND ELECTED OFFICIALS HARMLESS FROM AND AGAINST ALL INDEMNIFIED CLAIMS DIRECTLY ARISING OUT OF, INCIDENT TO, CONCERNING OR RESULTING FROM THE FAULT OF THE CONTRACTOR, OR THE CONTRACTOR'S AGENTS, EMPLOYEES OR SUBCONTRACTORS, IN THE PERFORMANCE OF THE CONTRACTOR'S OBLIGATIONS UNDER THE CONTRACT. NOTHING HEREIN SHALL BE DEEMED TO LIMIT THE RIGHTS OF THE CITY OR THE CONTRACTOR (INCLUDING, BUT NOT LIMITED TO, THE RIGHT TO SEEK CONTRIBUTION) AGAINST ANY THIRD PARTY WHO MAY BE LIABLE FOR AN INDEMNIFIED CLAIM.

32. INSURANCE: (reference Section 0400 for specific coverage requirements). The following insurance requirement applies. (Revised March 2013).

A. General Requirements.

- i. The Contractor shall at a minimum carry insurance in the types and amounts indicated in Section 0400, Supplemental Purchase Provisions, for the duration of the Contract, including extension options and hold over periods, and during any warranty period.
- ii. The Contractor shall provide Certificates of Insurance with the coverages and endorsements required in Section 0400, Supplemental Purchase Provisions, to the City as verification of coverage prior to contract execution and within fourteen (14) calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or hold over period is exercised, as verification of continuing coverage.
- iii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.
- iv. The City may request that the Contractor submit certificates of insurance to the City for all subcontractors prior to the subcontractors commencing work on the project.

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- v. The Contractor's and all subcontractors' insurance coverage shall be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of B+VII or better.
- vi. The "other" insurance clause shall not apply to the City where the City is an additional insured shown on any policy. It is intended that policies required in the Contract, covering both the City and the Contractor, shall be considered primary coverage as applicable.
- vii. If insurance policies are not written for amounts specified in Section 0400, Supplemental Purchase Provisions, the Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage.
- viii. The City shall be entitled, upon request, at an agreed upon location, and without expense, to review certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies.
- ix. The City reserves the right to review the insurance requirements set forth during the effective period of the Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by the City based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as the Contractor.
- x. The Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.
- xi. The Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. Self-insured retentions shall be disclosed on the Certificate of Insurance.
- xii. The Contractor shall provide the City thirty (30) calendar days' written notice of erosion of the aggregate limits below occurrence limits for all applicable coverages indicated within the Contract.
- xiii. The insurance coverages specified in Section 0400, Supplemental Purchase Provisions, are required minimums and are not intended to limit the responsibility or liability of the Contractor.

B. Specific Coverage Requirements: Specific insurance requirements are contained in Section 0400, Supplemental Purchase Provisions

33. **CLAIMS:** If any claim, demand, suit, or other action is asserted against the Contractor which arises under or concerns the Contract, or which could have a material adverse affect on the Contractor's ability to perform thereunder, the Contractor shall give written notice thereof to the City within ten (10) calendar days after receipt of notice by the Contractor. Such notice to the City shall state the date of notification of any such claim, demand, suit, or other action; the names and addresses of the claimant(s); the basis thereof; and the name of each person against whom such claim is being asserted. Such notice shall be delivered personally or by mail and shall be sent to the City and to the Austin City Attorney. Personal delivery to the City Attorney shall be to City Hall, 301 West 2nd Street, 4th Floor, Austin, Texas 78701, and mail delivery shall be to P.O. Box 1088, Austin, Texas 78767.
34. **NOTICES:** Unless otherwise specified, all notices, requests, or other communications required or appropriate to be given under the Contract shall be in writing and shall be deemed delivered three (3) business days after postmarked if sent by U.S. Postal Service Certified or Registered Mail, Return Receipt Requested. Notices delivered by other means shall be deemed delivered upon receipt by the addressee. Routine communications may be made by first class mail, telefax, or other commercially accepted means. Notices to the Contractor shall be sent to the address specified in the Contractor's Offer, or at such other address as a party may notify the other in writing. Notices to the

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City shall be addressed to the City at P.O. Box 1088, Austin, Texas 78767 and marked to the attention of the Contract Administrator.

35. **RIGHTS TO BID, PROPOSAL AND CONTRACTUAL MATERIAL:** All material submitted by the Contractor to the City shall become property of the City upon receipt. Any portions of such material claimed by the Contractor to be proprietary must be clearly marked as such. Determination of the public nature of the material is subject to the Texas Public Information Act, Chapter 552, Texas Government Code.
36. **NO WARRANTY BY CITY AGAINST INFRINGEMENTS:** The Contractor represents and warrants to the City that: (i) the Contractor shall provide the City good and indefeasible title to the Deliverables and (ii) the Deliverables supplied by the Contractor in accordance with the specifications in the Contract will not infringe, directly or contributorily, any patent, trademark, copyright, trade secret, or any other intellectual property right of any kind of any third party; that no claims have been made by any person or entity with respect to the ownership or operation of the Deliverables and the Contractor does not know of any valid basis for any such claims. The Contractor shall, at its sole expense, defend, indemnify, and hold the City harmless from and against all liability, damages, and costs (including court costs and reasonable fees of attorneys and other professionals) arising out of or resulting from: (i) any claim that the City's exercise anywhere in the world of the rights associated with the City's ownership, and if applicable, license rights, and its use of the Deliverables infringes the intellectual property rights of any third party; or (ii) the Contractor's breach of any of Contractor's representations or warranties stated in this Contract. In the event of any such claim, the City shall have the right to monitor such claim or at its option engage its own separate counsel to act as co-counsel on the City's behalf. Further, Contractor agrees that the City's specifications regarding the Deliverables shall in no way diminish Contractor's warranties or obligations under this paragraph and the City makes no warranty that the production, development, or delivery of such Deliverables will not impact such warranties of Contractor.
37. **CONFIDENTIALITY:** In order to provide the Deliverables to the City, Contractor may require access to certain of the City's and/or its licensors' confidential information (including inventions, employee information, trade secrets, confidential know-how, confidential business information, and other information which the City or its licensors consider confidential) (collectively, "Confidential Information"). Contractor acknowledges and agrees that the Confidential Information is the valuable property of the City and/or its licensors and any unauthorized use, disclosure, dissemination, or other release of the Confidential Information will substantially injure the City and/or its licensors. The Contractor (including its employees, subcontractors, agents, or representatives) agrees that it will maintain the Confidential Information in strict confidence and shall not disclose, disseminate, copy, divulge, recreate, or otherwise use the Confidential Information without the prior written consent of the City or in a manner not expressly permitted under this Agreement, unless the Confidential Information is required to be disclosed by law or an order of any court or other governmental authority with proper jurisdiction, provided the Contractor promptly notifies the City before disclosing such information so as to permit the City reasonable time to seek an appropriate protective order. The Contractor agrees to use protective measures no less stringent than the Contractor uses within its own business to protect its own most valuable information, which protective measures shall under all circumstances be at least reasonable measures to ensure the continued confidentiality of the Confidential Information.
38. **PUBLICATIONS:** All published material and written reports submitted under the Contract must be originally developed material unless otherwise specifically provided in the Contract. When material not originally developed is included in a report in any form, the source shall be identified.
39. **ADVERTISING:** The Contractor shall not advertise or publish, without the City's prior consent, the fact that the City has entered into the Contract, except to the extent required by law.
40. **NO CONTINGENT FEES:** The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure the Contract upon any agreement or understanding for commission, percentage, brokerage, or contingent fee, excepting bona fide employees of bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the City shall have the right, in addition to any other remedy available, to cancel the Contract without liability and to deduct from any amounts owed to the Contractor, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

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41. **GRATUITIES:** The City may, by written notice to the Contractor, cancel the Contract without liability if it is determined by the City that gratuities were offered or given by the Contractor or any agent or representative of the Contractor to any officer or employee of the City of Austin with a view toward securing the Contract or securing favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such contract. In the event the Contract is canceled by the City pursuant to this provision, the City shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by the Contractor in providing such gratuities.
42. **PROHIBITION AGAINST PERSONAL INTEREST IN CONTRACTS:** No officer, employee, independent consultant, or elected official of the City who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation. Any willful violation of this section shall constitute impropriety in office, and any officer or employee guilty thereof shall be subject to disciplinary action up to and including dismissal. Any violation of this provision, with the knowledge, expressed or implied, of the Contractor shall render the Contract voidable by the City.
43. **INDEPENDENT CONTRACTOR:** The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. The Contractor's services shall be those of an independent contractor. The Contractor agrees and understands that the Contract does not grant any rights or privileges established for employees of the City.
44. **ASSIGNMENT-DELEGATION:** The Contract shall be binding upon and enure to the benefit of the City and the Contractor and their respective successors and assigns, provided however, that no right or interest in the Contract shall be assigned and no obligation shall be delegated by the Contractor without the prior written consent of the City. Any attempted assignment or delegation by the Contractor shall be void unless made in conformity with this paragraph. The Contract is not intended to confer rights or benefits on any person, firm or entity not a party hereto; it being the intention of the parties that there be no third party beneficiaries to the Contract.
45. **WAIVER:** No claim or right arising out of a breach of the Contract can be discharged in whole or in part by a waiver or renunciation of the claim or right unless the waiver or renunciation is supported by consideration and is in writing signed by the aggrieved party. No waiver by either the Contractor or the City of any one or more events of default by the other party shall operate as, or be construed to be, a permanent waiver of any rights or obligations under the Contract, or an express or implied acceptance of any other existing or future default or defaults, whether of a similar or different character.
46. **MODIFICATIONS:** The Contract can be modified or amended only by a writing signed by both parties. No pre-printed or similar terms on any the Contractor invoice, order or other document shall have any force or effect to change the terms, covenants, and conditions of the Contract.
47. **INTERPRETATION:** The Contract is intended by the parties as a final, complete and exclusive statement of the terms of their agreement. No course of prior dealing between the parties or course of performance or usage of the trade shall be relevant to supplement or explain any term used in the Contract. Although the Contract may have been substantially drafted by one party, it is the intent of the parties that all provisions be construed in a manner to be fair to both parties, reading no provisions more strictly against one party or the other. Whenever a term defined by the Uniform Commercial Code, as enacted by the State of Texas, is used in the Contract, the UCC definition shall control, unless otherwise defined in the Contract.
48. **DISPUTE RESOLUTION:**
- A. If a dispute arises out of or relates to the Contract, or the breach thereof, the parties agree to negotiate prior to prosecuting a suit for damages. However, this section does not prohibit the filing of a lawsuit to toll the running of a statute of limitations or to seek injunctive relief. Either party may make a written request for a meeting between representatives of each party within fourteen (14) calendar days after receipt of the request or such later period as agreed by the parties. Each party shall include, at a minimum, one (1) senior level individual with decision-making authority regarding the dispute. The purpose of this and any subsequent meeting is to attempt in good faith to negotiate a resolution of the dispute. If, within thirty (30) calendar days after such meeting, the parties have not succeeded in negotiating a resolution of the dispute, they will proceed directly to mediation as

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described below. Negotiation may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.

- B. If the efforts to resolve the dispute through negotiation fail, or the parties waive the negotiation process, the parties may select, within thirty (30) calendar days, a mediator trained in mediation skills to assist with resolution of the dispute. Should they choose this option, the City and the Contractor agree to act in good faith in the selection of the mediator and to give consideration to qualified individuals nominated to act as mediator. Nothing in the Contract prevents the parties from relying on the skills of a person who is trained in the subject matter of the dispute or a contract interpretation expert. If the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the mediator shall be selected by the Travis County Dispute Resolution Center (DRC). The parties agree to participate in mediation in good faith for up to thirty (30) calendar days from the date of the first mediation session. The City and the Contractor will share the mediator's fees equally and the parties will bear their own costs of participation such as fees for any consultants or attorneys they may utilize to represent them or otherwise assist them in the mediation.
49. **JURISDICTION AND VENUE:** The Contract is made under and shall be governed by the laws of the State of Texas, including, when applicable, the Uniform Commercial Code as adopted in Texas, V.T.C.A., Bus. & Comm. Code, Chapter 1, excluding any rule or principle that would refer to and apply the substantive law of another state or jurisdiction. All issues arising from this Contract shall be resolved in the courts of Travis County, Texas and the parties agree to submit to the exclusive personal jurisdiction of such courts. The foregoing, however, shall not be construed or interpreted to limit or restrict the right or ability of the City to seek and secure injunctive relief from any competent authority as contemplated herein.
50. **INVALIDITY:** The invalidity, illegality, or unenforceability of any provision of the Contract shall in no way affect the validity or enforceability of any other portion or provision of the Contract. Any void provision shall be deemed severed from the Contract and the balance of the Contract shall be construed and enforced as if the Contract did not contain the particular portion or provision held to be void. The parties further agree to reform the Contract to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Contract from being void should a provision which is the essence of the Contract be determined to be void.
51. **HOLIDAYS:** The following holidays are observed by the City:

<u>Holiday</u>	<u>Date Observed</u>
New Year's Day	January 1
Martin Luther King, Jr.'s Birthday	Third Monday in January
President's Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Veteran's Day	November 11
Thanksgiving Day	Fourth Thursday in November
Friday after Thanksgiving	Friday after Thanksgiving
Christmas Eve	December 24
Christmas Day	December 25

If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday.

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52. **SURVIVABILITY OF OBLIGATIONS:** All provisions of the Contract that impose continuing obligations on the parties, including but not limited to the warranty, indemnity, and confidentiality obligations of the parties, shall survive the expiration or termination of the Contract.

53. **NON-SUSPENSION OR DEBARMENT CERTIFICATION:**

The City of Austin is prohibited from contracting with or making prime or sub-awards to parties that are suspended or debarred or whose principals are suspended or debarred from Federal, State, or City of Austin Contracts. By accepting a Contract with the City, the Vendor certifies that its firm and its principals are not currently suspended or debarred from doing business with the Federal Government, as indicated by the General Services Administration List of Parties Excluded from Federal Procurement and Non-Procurement Programs, the State of Texas, or the City of Austin.

54. **EQUAL OPPORTUNITY**

- A. **Equal Employment Opportunity:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice as defined in Chapter 5-4 of the City Code. No Offer submitted to the City shall be considered, nor any Purchase Order issued, or any Contract awarded by the City unless the Offeror has executed and filed with the City Purchasing Office a current Non-Discrimination Certification. Non-compliance with Chapter 5-4 of the City Code may result in sanctions, including termination of the contract and the Contractor's suspension or debarment from participation on future City contracts until deemed compliant with Chapter 5-4.
- B. **Americans with Disabilities Act (ADA) Compliance:** No Offeror, or Offeror's agent, shall engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

55. **INTERESTED PARTIES DISCLOSURE**

As a condition to entering the Contract, the Business Entity constituting the Offeror must provide the following disclosure of Interested Parties to the City prior to the award of a contract with the City on Form 1295 "Certificate of Interested Parties" as prescribed by the Texas Ethics Commission for any contract award requiring council authorization. The Certificate of Interested Parties Form must be completed on the Texas Ethics Commission website, printed, and signed by the authorized agent of the Business Entity with acknowledgment that disclosure is made under oath and under penalty of perjury. The City will submit the "Certificate of Interested Parties" to the Texas Ethics Commission within 30 days of receipt from the successful Offeror. The Offeror is reminded that the provisions of Local Government Code 176, regarding conflicts of interest between the bidders and local officials remains in place. Link to Texas Ethics Commission Form 1295 process and procedures below:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

56. **BUY AMERICAN ACT-SUPPLIES (Applicable to certain Federally funded requirements)**

- A. Definitions. As used in this paragraph –
- i. "Component" means an article, material, or supply incorporated directly into an end product.
 - ii. "Cost of components" means -
 - (1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

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- (2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

iii. "Domestic end product" means-

- (1) An unmanufactured end product mined or produced in the United States; or
- (2) An end product manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind as those that the agency determines are not mined, produced, or manufactured in sufficient and reasonably available commercial quantities of a satisfactory quality are treated as domestic. Scrap generated, collected, and prepared for processing in the United States is considered domestic.

iv. "End product" means those articles, materials, and supplies to be acquired under the contract for public use.

v. "Foreign end product" means an end product other than a domestic end product.

vi. "United States" means the 50 States, the District of Columbia, and outlying areas.

- B. The Buy American Act (41 U.S.C. 10a - 10d) provides a preference for domestic end products for supplies acquired for use in the United States.
- C. The City does not maintain a list of foreign articles that will be treated as domestic for this Contract; but will consider for approval foreign articles as domestic for this product if the articles are on a list approved by another Governmental Agency. The Offeror shall submit documentation with their Offer demonstrating that the article is on an approved Governmental list.
- D. The Contractor shall deliver only domestic end products except to the extent that it specified delivery of foreign end products in the provision of the Solicitation entitled "Buy American Act Certificate".

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The following Supplemental Purchasing Provisions apply to this solicitation:

1. **EXPLANATIONS OR CLARIFICATIONS:** (reference paragraph 5 in Section 0200)

All requests for explanations or clarifications must be submitted in writing to the Purchasing Office by email to erin.dvincent@austintexas.gov no later than close of business on 6/30/16.

2. **INSURANCE:** Insurance is required for this solicitation.

A. **General Requirements:** See Section 0300, Standard Purchase Terms and Conditions, paragraph 32, entitled Insurance, for general insurance requirements.

- i. The Contractor shall provide a Certificate of Insurance as verification of coverages required below to the City at the below address prior to contract execution and within 14 calendar days after written request from the City. Failure to provide the required Certificate of Insurance may subject the Offer to disqualification from consideration for award
- ii. The Contractor shall not commence work until the required insurance is obtained and until such insurance has been reviewed by the City. Approval of insurance by the City shall not relieve or decrease the liability of the Contractor hereunder and shall not be construed to be a limitation of liability on the part of the Contractor.
- iii. The Contractor must also forward a Certificate of Insurance to the City whenever a previously identified policy period has expired, or an extension option or holdover period is exercised, as verification of continuing coverage.
- iv. The Certificate of Insurance, and updates, shall be mailed to the following address:

City of Austin Purchasing Office
P. O. Box 1088
Austin, Texas 78767

B. **Specific Coverage Requirements:** The Contractor shall at a minimum carry insurance in the types and amounts indicated below for the duration of the Contract, including extension options and hold over periods, and during any warranty period. These insurance coverages are required minimums and are not intended to limit the responsibility or liability of the Contractor.

- i. **Worker's Compensation and Employers' Liability Insurance:** Coverage shall be consistent with statutory benefits outlined in the Texas Worker's Compensation Act (Section 401). The minimum policy limits for Employer's Liability are \$100,000 bodily injury each accident, \$500,000 bodily injury by disease policy limit and \$100,000 bodily injury by disease each employee.
 - (1) The Contractor's policy shall apply to the State of Texas and include these endorsements in favor of the City of Austin:
 - (a) Waiver of Subrogation, Form WC420304, or equivalent coverage
 - (b) Thirty (30) days Notice of Cancellation, Form WC420601, or equivalent coverage
- ii. **Commercial General Liability Insurance:** The minimum bodily injury and property damage per occurrence are \$500,000 for coverages A (Bodily Injury and Property Damage) and B (Personal and Advertising Injury).
 - (1) The policy shall contain the following provisions:
 - (a) Contractual liability coverage for liability assumed under the Contract and all other Contracts related to the project.
 - (b) Contractor/Subcontracted Work.
 - (c) Products/Completed Operations Liability for the duration of the warranty period.
 - (d) If the project involves digging or drilling provisions must be included that provide Explosion, Collapse, and/or Underground Coverage.
 - (2) The policy shall also include these endorsements in favor of the City of Austin:
 - (a) Waiver of Subrogation, Endorsement CG 2404, or equivalent coverage

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- (b) Thirty (30) days Notice of Cancellation, Endorsement CG 0205, or equivalent coverage
 - (c) The City of Austin listed as an additional insured, Endorsement CG 2010, or equivalent coverage
 - iii. **Business Automobile Liability Insurance:** The Contractor shall provide coverage for all owned, non-owned and hired vehicles with a minimum combined single limit of \$500,000 per occurrence for bodily injury and property damage. Alternate acceptable limits are \$250,000 bodily injury per person, \$500,000 bodily injury per occurrence and at least \$100,000 property damage liability per accident.
 - (1) The policy shall include these endorsements in favor of the City of Austin:
 - (a) Waiver of Subrogation, Endorsement CA0444, or equivalent coverage
 - (b) Thirty (30) days Notice of Cancellation, Endorsement CA0244, or equivalent coverage
 - (c) The City of Austin listed as an additional insured, Endorsement CA2048, or equivalent coverage.
 - C. **Endorsements:** The specific insurance coverage endorsements specified above, or their equivalents must be provided. In the event that endorsements, which are the equivalent of the required coverage, are proposed to be substituted for the required coverage, copies of the equivalent endorsements must be provided for the City's review and approval.
3. **TERM OF CONTRACT:**
- A. The Contract shall be in effect for an initial term of 48 months and may be extended thereafter for up to 4 additional 12 month periods, subject to the approval of the Contractor and the City Purchasing Officer or his designee.
 - B. Upon expiration of the initial term or period of extension, the Contractor agrees to hold over under the terms and conditions of this agreement for such a period of time as is reasonably necessary to re-solicit and/or complete the project (not to exceed 120 days unless mutually agreed on in writing).
 - C. Upon written notice to the Contractor from the City's Purchasing Officer or his designee and acceptance of the Contractor, the term of this contract shall be extended on the same terms and conditions for an additional period as indicated in paragraph A above.
 - D. Prices are firm and fixed for the first 12 months. Thereafter, price changes are subject to the Economic Price Adjustment provisions of this Contract.
4. **QUANTITIES:** The quantities listed are annual estimates for the Contract. The City reserves the right to purchase more or less of these quantities as may be required during the Contract term. Quantities will be as needed and specified by the City for each order. Unless specified in the solicitation, there are no minimum order quantities.
5. **CONTRACT AWARD:** This contract will be awarded in an annual amount not to exceed \$1,200,000. This is a requirements based contract and work will be requested as required and specified by the City for each project. The not to exceed annual amount is not a guarantee of any work under the contract.
6. **INVOICES and PAYMENT:** (reference paragraphs 12 and 13 in Section 0300)
- A. Invoices shall contain a unique invoice number and the information required in Section 0300, paragraph 12, entitled "Invoices." Invoices received without all required information cannot be processed and will be returned to the vendor.
 - B. Contractor shall submit records as required in Section 0500 Section 9.3, including level and velocity verification with each monthly payment request.

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Invoices shall be mailed to the below address:

	City of Austin
Department	Austin Water – Field Operations Division
Attn:	Accounts Payable
Address	2600 Webberville Rd Center
City, State Zip Code	Austin, TX 78702

- C. The Contractor agrees to accept payment by either credit card, check or Electronic Funds Transfer (EFT) for all goods and/or services provided under the Contract. The Contractor shall factor the cost of processing credit card payments into the Offer. There shall be no additional charges, surcharges, or penalties to the City for payments made by credit card.

7. MATERIALS SPECIFICATIONS/DESCRIPTIVE LITERATURE:

- A. If a solicitation refers to a Qualified Products List (QPL), Standard Products List (SPL) or a manufacturer's name and product, any Offeror offering products not referenced in the solicitation must submit as part of their Offer materials specifications/descriptive literature for the non-referenced product. Materials specifications/descriptive literature must be identified to show the item(s) in the Offer to which it applies.
- B. Materials specifications/descriptive literature are defined as product manufacturer's catalog pages, "cut sheets" applicable tests results, or related detailed documents that specify material construction, performance parameters, and any industrial standards that are applicable such as ANSI, ASTM, ASME, SAE, NFPA, NBS, EIA, ESL, and NSA. The submitted materials specifications/descriptive literature must include the manufacturer's name and product number of the product being offered.
- C. The failure of the materials specifications/descriptive literature to show that the product offered conforms to the requirements of the Solicitation shall result in rejection of the Offer.
- D. Failure to submit the materials specifications/descriptive literature as part of the Offer may subject the Offer to disqualification from consideration for award.

8. SAMPLES – QUALIFIED PRODUCTS LIST (QPL) and/or STANDARD PRODUCTS LIST (SPL):

- A. If requested by the City, Offeror shall submit a sample of all proposed "equal" non-QPL and/or non-SPL products included in the Offer. The City reserves the right to test any "equal" non-QPL and/or non-SPL product that is offered prior to determination of award. If the amount of time required for testing exceeds ten (10) calendar days from the date of receipt of the sample, the City may award to Offerors with pretested products. The product will still be tested and if it meets specifications, will be added to the QPL and or SPL for future Solicitations.
- B. Send samples to the City at the following address:

City of Austin	
Department	Austin Water – Field Operations Division
Address	2600 Webberville Rd Center
City, State Zip Code	Austin, TX 78702

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Attn:	Kevin Koeller
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- C. Products that are not pretested must be available within forty-eight (48) hours of request from City at no charge to the City for testing and evaluation.
- D. All products (except brand-name) provided to the City under this Solicitation will be evaluated or tested and must meet all requirements of the specification, regardless of whether or not all requirements are to be evaluated or tested.
- E. Samples will be provided at no cost to the City, will be retained by the City, and may be used in assuring compliance with materials specifications after award. Failure to supply samples when requested shall subject the Offer to disqualification from consideration for award.

9. HAZARDOUS MATERIALS:

- A. If this Solicitation involves hazardous materials, the Offeror shall furnish with the Offer Material Safety Data Sheets (MSDS), (OSHA Form 20), on all chemicals and hazardous materials specifying the generic and trade name of product, product specification, and full hazard information including receiving and storage hazards. Instructions, special equipment needed for handling, information on approved containers, and instructions for the disposal of the material are also required.
- B. Failure to submit the MSDS as part of the Offer may subject the Offer to disqualification from consideration for award.
- C. The MSDS, instructions and information required in paragraph "A" must be included with each shipment under the contract.

10. PUBLISHED PRICE LISTS:

- A. Offerors may quote using published price lists in the following ways:
 - i. Offerors may quote one discount from a Published Price List for all offered items to be covered in the Contract. The discount must remain firm during the life of the Contract.
 - ii. Offerors may quote their dealer cost, plus a percentage markup to be added to the cost. The percentage markup must remain firm during the life of the contract.
- B. Two (2) copies of the list upon which the discounts or markups are based shall be submitted with the Offer. All price lists identified in the Offer shall clearly include the Offeror's name and address, the solicitation number, prices, title of the discount and number, and the latest effective date of the price list. If the Offer is based on a discount or markup on a manufacturer's price list, the price list must also include the manufacturer's name, the manufacturer's latest effective date, and the manufacturer's price schedule. All price lists submitted become part of the Offer.
- C. The price list may be superseded or replaced during the Contract term only if price revisions are the result of the manufacturer's official price list revision. Written notification from the Contractor of price changes, along with two (2) copies of the revised list must be submitted to the Buyer in the Purchasing Office with the effective date of change to be at least 30 calendar days (30 unless a different period is inserted) after written notification. The City reserves the right to refuse any list revision.
- D. The discounts or markups on equipment rental, material, supplies, parts, and contract services shall be fixed throughout the term of the Contract, and are not subject to increase.
- E. Failure to submit written notification of price list revisions will result in the rejection of new prices being invoiced. The City will only pay invoices according to the last approved price list.

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11. LIVING WAGES:

- A. The minimum wage required for any Contractor employee directly assigned to this City Contract is \$13.03 per hour, unless Published Wage Rates are included in this solicitation. In addition, the City may stipulate higher wage rates in certain solicitations in order to assure quality and continuity of service.
- B. The City requires Contractors submitting Offers on this Contract to provide a certification (**see the Living Wages Contractor Certification included in the Solicitation**) with their Offer certifying that all employees directly assigned to this City Contract will be paid a minimum living wage equal to or greater than \$13.03 per hour. The certification shall include a list of all employees directly assigned to providing services under the resultant contract including their name and job title. The list shall be updated and provided to the City as necessary throughout the term of the Contract.
- C. The Contractor shall maintain throughout the term of the resultant contract basic employment and wage information for each employee as required by the Fair Labor Standards Act (FLSA).
- D. The Contractor shall provide to the Department's Contract Manager with the first invoice, individual Employee Certifications for all employees directly assigned to the contract. The City reserves the right to request individual Employee Certifications at any time during the contract term. Employee Certifications shall be signed by each employee directly assigned to the contract. The Employee Certification form is available on-line at https://www.austintexas.gov/financeonline/vendor_connection/index.cfm.
- E. Contractor shall submit employee certifications annually on the anniversary date of contract award with the respective invoice to verify that employees are paid the Living Wage throughout the term of the contract. The Employee Certification Forms shall be submitted for employees added to the contract and/or to report any employee changes as they occur.
- F. The Department's Contract Manager will periodically review the employee data submitted by the Contractor to verify compliance with this Living Wage provision. The City retains the right to review employee records required in paragraph C above to verify compliance with this provision.

12. NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING:

- A. On November 10, 2011, the Austin City Council adopted Ordinance No. 20111110-052 amending Chapter 2.7, Article 6 of the City Code relating to Anti-Lobbying and Procurement. The policy defined in this Code applies to Solicitations for goods and/or services requiring City Council approval under City Charter Article VII, Section 15 (Purchase Procedures). During the No-Contact Period, Offerors or potential Offerors are prohibited from making a representation to anyone other than the Authorized Contact Person in the Solicitation as the contact for questions and comments regarding the Solicitation.
- B. If during the No-Contact Period an Offeror makes a representation to anyone other than the Authorized Contact Person for the Solicitation, the Offeror's Offer is disqualified from further consideration except as permitted in the Ordinance.
- C. If an Offeror has been disqualified under this article more than two times in a sixty (60) month period, the Purchasing Officer shall debar the Offeror from doing business with the City for a period not to exceed three (3) years, provided the Offeror is given written notice and a hearing in advance of the debarment.
- D. The City requires Offerors submitting Offers on this Solicitation to certify that the Offeror has not in any way directly or indirectly made representations to anyone other than the Authorized Contact Person during the No-Contact Period as defined in the Ordinance. The text of the City Ordinance is posted on the Internet at: <http://www.ci.austin.tx.us/edims/document.cfm?id=161145>

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13. WORKFORCE SECURITY CLEARANCE AND IDENTIFICATION (ID):

- A. Contractors are required to obtain a certified criminal background report with fingerprinting (referred to as the “report”) for all persons performing on the contract, including all Contractor, Subcontractor, and Supplier personnel (for convenience referred to as “Contractor’s personnel”).
- B. The report may be obtained by reporting to one of the below governmental entities, submitting to fingerprinting and requesting the report [requestors may anticipate a two-week delay for State reports and up to a four to six week delay for receipt of a Federal report.].
 - i. Texas Department of Public Safety for any person currently residing in the State of Texas and having a valid Texas driver’s license or photo ID card;
 - ii. The appropriate governmental agency from either the U.S. state or foreign nation in which the person resides and holds either a valid U.S. state-issued or foreign national driver’s license or photo ID card; or
 - iii. A Federal Agency. A current Federal security clearance obtained from and certified by a Federal agency may be substituted.
- C. Contractor shall obtain the reports at least 30 days prior to any onsite work commencement. Contractor also shall attach to each report the project name, Contractor’s personnel name(s), current address(es), and a copy of the U.S. state-issued or foreign national driver’s license or photo ID card.
- D. Contractor shall provide the City a Certified Criminal Background Report affirming that Contractor has conducted required security screening of Contractor’s personnel to determine those appropriate for execution of the work and for presence on the City’s property. A list of all Contractor Personnel requiring access to the City’s site shall be attached to the affidavit.
- E. Upon receipt by the City of Contractor’s affidavit described in (D) above and the list of the Contractor’s personnel, the City will provide each of Contractor’s personnel a contractor ID badge that is required for access to City property that shall be worn at all times by Contractor’s personnel during the execution of the work.
- F. The City reserves the right to deny an ID badge to any Contractor personnel for reasonable cause, including failure of a Criminal History background check. The City will notify the Contractor of any such denial no more than twenty (20) days after receipt of the Contractor’s reports. Where denial of access by a particular person may cause the Contractor to be unable to perform any portion of the work of the contract, the Contractor shall so notify the City’s Contract Manager, in writing, within ten (10) calendar days of the receipt of notification of denial.
- G. Contractor’s personnel will be required to wear the ID badge at all times while on the work site. Failure to wear or produce the ID badge may be cause for removal of an individual from the work site, without regard to Contractor’s schedule. Lost ID badges shall be reported to the City’s Contract Manager. Contractor shall reimburse the City for all costs incurred in providing additional ID badges to Contractor Personnel.
- H. ID badges to enter and/or work on the City property may be revoked by the City at any time. ID badges must be returned to the City at the time of project completion and acceptance or upon removal of an individual from the work site.
- I. Contractor is not required to obtain reports for delivery personnel, including but not limited to FedEx, UPS, Roadway, or other materials delivery persons, however all delivery personnel must present company/employer-issued photo ID and be accompanied by at least one of Contractor’s personnel at all times while at the work site.

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- J. The Contractor shall retain the reports and make them available for audit by the City during regular business hours (reference paragraph 17 in Section 0300, entitled Right to Audit).

14. ECONOMIC PRICE ADJUSTMENT:

- A. **Price Adjustments:** Prices shown in this Contract shall remain firm for the first 12-months of the Contract. After that, in recognition of the potential for fluctuation of the Contractor's cost, a price adjustment (increase or decrease) may be requested by either the City or the Contractor on the anniversary date of the Contract or as may otherwise be specified herein. The percentage change between the contract price and the requested price shall not exceed the percentage change between the specified index in effect on the date the solicitation closed and the most recent, non-preliminary data at the time the price adjustment is requested. The requested price adjustment shall not exceed twenty-five percent (25%) for any single line item and in no event shall the total amount of the contract be automatically adjusted as a result of the change in one or more line items made pursuant to this provision. Prices for products or services unaffected by verifiable cost trends shall not be subject to adjustment.
- B. **Effective Date:** Approved price adjustments will go into effect on the first day of the upcoming renewal period or anniversary date of contract award and remain in effect until contract expiration unless changed by subsequent amendment.
- C. **Adjustments:** A request for price adjustment must be made in writing and submitted to the other Party prior to the yearly anniversary date of the Contract; adjustments may only be considered at that time unless otherwise specified herein. Requested adjustments must be solely for the purpose of accommodating changes in the Contractor's direct costs. Contractor shall provide an updated price listing once agreed to adjustment(s) have been approved by the parties.
- D. **Indexes:** In most cases an index from the Bureau of Labor Standards (BLS) will be utilized; however, if there is more appropriate, industry recognized standard then that index may be selected.
- i. The following definitions apply:
- (1) **Base Period:** Month and year of the original contracted price (the solicitation close date).
 - (2) **Base Price:** Initial price quoted, proposed and/or contracted per unit of measure.
 - (3) **Adjusted Price:** Base Price after it has been adjusted in accordance with the applicable index change and instructions provided.
 - (4) **Change Factor:** The multiplier utilized to adjust the Base Price to the Adjusted Price.
 - (5) **Weight %:** The percent of the Base Price subject to adjustment based on an index change.
- ii. **Adjustment-Request Review:** Each adjustment-request received will be reviewed and compared to changes in the index(es) identified below. Where applicable:
- (1) Utilize final Compilation data instead of Preliminary data
 - (2) If the referenced index is no longer available shift up to the next higher category index.
- iii. **Index Identification:** Complete table as they may apply.

Weight % of Base Price: 50%	
Database Name: Employment Cost Index	
Series ID: CIU20200001200001	
<input checked="checked" type="checkbox"/> Not Seasonally Adjusted	<input type="checkbox"/> Seasonally Adjusted
Geographical Area: United States	
Description of Series ID: Professional and related occupations	

- E. **Calculation:** Price adjustment will be calculated as follows:

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Single Index: Adjust the Base Price by the same factor calculated for the index change.

Index at time of calculation
Divided by index on solicitation close date
Equals Change Factor
Multiplied by the Base Rate
Equals the Adjusted Price

- F. If the requested adjustment is not supported by the referenced index, the City, at its sole discretion, may consider approving an adjustment on fully documented market increases.
15. **INTERLOCAL PURCHASING AGREEMENTS:** (applicable to competitively procured goods/services contracts).
- A. The City has entered into Interlocal Purchasing Agreements with other governmental entities, pursuant to the Interlocal Cooperation Act, Chapter 791 of the Texas Government Code. The Contractor agrees to offer the same prices and terms and conditions to other eligible governmental agencies that have an interlocal agreement with the City.
- B. The City does not accept any responsibility or liability for the purchases by other governmental agencies through an interlocal cooperative agreement.
16. **OWNERSHIP AND USE OF DELIVERABLES:** The City shall own all rights, titles, and interests throughout the world in and to the Deliverables.
- A. **Patents:** As to any patentable subject matter contained in the Deliverables, the Contractor agrees to disclose such patentable subject matter to the City. Further, if requested by the City, the Contractor agrees to assign and, if necessary, cause each of its employees to assign the entire right, title, and interest to specific inventions under such patentable subject matter to the City and to execute, acknowledge, and deliver and, if necessary, cause each of its employees to execute, acknowledge, and deliver an assignment of letters patent, in a form to be reasonably approved by the City, to the City upon request by the City.
- B. **Copyrights:** As to any Deliverable containing copyrighted subject matter, the Contractor agrees that upon their creation, such Deliverables shall be considered as work made-for-hire by the Contractor for the City and the City shall own all copyrights in and to such Deliverables, provided however, that nothing in this Paragraph 36 shall negate the City's sole or joint ownership of any such Deliverables arising by virtue of the City's sole or joint authorship of such Deliverables. Should by operation of law, such Deliverables not be considered work made-for-hire, the Contractor hereby assigns to the City (and agrees to cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver an assignment to the City of Austin) all worldwide right, title, and interest in and to such Deliverables. With respect to such work made-for-hire, the Contractor agrees to execute, acknowledge and deliver and cause each of its employees providing services to the City hereunder to execute, acknowledge, and deliver a work-for-hire agreement, in a form to be reasonably approved by the City, to the City upon delivery of such Deliverables to the City or at such other time as the City may request.
- C. **Additional Assignments:** The Contractor further agrees to, and if applicable, cause each of its employees to execute, acknowledge, and deliver all applications, specifications, oaths, assignments, and all other instruments which the City might reasonably deem necessary in order to apply for and obtain copyright protection, mask work registration, trademark registration and/or protection, letters patent, or any similar rights in any and all countries and in order to assign and convey to the City, its

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successors, assigns, and nominees, the sole and exclusive right, title, and interest in and to the Deliverables, The Contractor's obligations to execute acknowledge, and deliver (or cause to be executed, acknowledged, and delivered) instruments or papers such as those described in this Paragraph 36 A., B., and C. shall continue after the termination of this Contract with respect to such Deliverables. In the event the City should not seek to obtain copyright protection, mask work registration or patent protection for any of the Deliverables, but should arise to keep the same secret, the Contractor agrees to treat the same as Confidential Information under the terms of Paragraph above.

17. **CONTRACT MANAGER:** The following person is designated as Contract Manager, and will act as the contact point between the City and the Contractor during the term of the Contract:

Kevin Koeller

512-972-2055

Kevin.Koeller@austinwater.com

*Note: The above listed Contract Manager is not the authorized Contact Person for purposes of the **NON-COLLUSION, NON-CONFLICT OF INTEREST, AND ANTI-LOBBYING Provision** of this Section; and therefore, contact with the Contract Manager is prohibited during the no contact period.

Scope of Work
Solicitation No. EAD0128
Description: Wastewater Flow Monitoring Services

1.0 Purpose

The City of Austin (City) seeks proposals from a qualified Contractor to perform wastewater flow monitoring services for the City of Austin, Austin Water ("City"). This service shall provide the flow data to the City for Inflow and Infiltration (I/I) investigations, temporary flow monitoring, and sewer system hydraulic model calibrations. Based upon the data collected under this contract, the City will calibrate the hydraulic model, evaluate the flow in the wastewater collection system and use the data as a warning tool for identifying potential sanitary sewer overflows. It is vital for the City to obtain accurate data from this contract under all weather conditions at all times, and especially during and after major wet rain weather events.

2.0 Applicable References

- 2.1 TMUTCD: Texas Department of Transportation Manual on Uniform Traffic Control Devices.
www.txdot.gov
- 2.2 National Fire Protection Agency (NFPA) 820
www.nfpa.org
- 2.3 National Electric Code (NFPA 70)
www.nfpa.org
- 2.4 29 CFR, Part 1926; United States Department of Labor Rules 29 CFR, Part 1926 Occupational Safety and Health Administration (OSHA)
www.osha.gov
- 2.5 29 CFR Part 1910.146, Permit Required Confined Spaces, United States Department of Labor, Occupational Safety and Health Administration (OSHA)
www.osha.gov
- 2.6 ANSI Z 117, Safety Requirements for Confined Spaces
www.asse.org
- 2.7 Austin Water Standard Operating Procedure C-4, Confined Space Entry. Refer to Policy C-4 Confined Space Entry attachment, or the most current version.

3.0 Contractor General Requirements

- 3.1 The Contractor shall provide clear and timely communication. The Contractor shall answer written correspondence from the City within three (3) working days and return phone messages within one (1) working day. This communication is essential for the City.
- 3.2 Hours of Work: The Contractor shall perform work in the field within standard working hours of 7:00 a.m. to 6:00 p.m. Monday through Friday (except City observed holidays). The Contractor shall request prior approval from the City for alternate work hours for the installation and removal of FMS in low flow conditions.
- 3.3 Scheduling: The Contractor shall propose and develop an overall schedule of work for each year of the contract. The Contractor shall provide to the City the general locations of the planned work. Changes to the schedule and locations during the contract as requested by the City shall be at no additional cost to the City. City will review and approve before any work may start.

- 3.4 Standards: The Contractor shall conduct themselves in a professional manner. At a minimum, the Contractor's personnel shall wear the approved uniform and nametag. The Contractor's field equipment shall be properly maintained, clean, and in working condition. The Contractor's vehicles shall be clearly marked with the Contractor's name, contact phone number, and marked with "Under Contract with the City of Austin" on both sides of the vehicle. The Contractor shall maintain written customer service procedures for field operations.
- 3.5 Security Access (other than City sites): One of the flow metering sites is located within the property of the Texas National Guard. The City will coordinate with the officials at Camp Mabry to allow access to the flow-metering site. It is the responsibility of the Contractor to comply with all the requirements to work in such an area.
- 3.6 No substitutions or deviations in equipment during the term of the contract may occur unless approved in writing by the City.

4.0 Contractor Material Requirements

- 4.1 The Contractor shall provide all flow meters, labor, materials, equipment, and accessories necessary to install and remove flow meters, maintain and calibrate installed flow meters, verify operation of the flow meters, power flow monitors, including powering data transmission, flow monitoring, collecting, and processing of the flow data, and automatically transferring the data on an hourly basis to an FTP (File Transfer Protocol) site provided by the City.
- 4.2 The Contractor shall provide and install a Flow Meter System (FMS) at each metering site listed in Tables 2, 3, 4, 5 and 6 that consists of flow meter logger, flow meter sensors, remote terminal unit (RTU), if required, modem, and associated power sources.
- 4.3 The Contractor shall provide flow meter devices capable of collecting data at five (5) minute intervals. The flow sensors or probes shall maintain recording accuracies during surcharge conditions. The Contractor shall furnish the necessary hardware devices to attach the probe to the wastewater main and install them. The flow meter shall meet the following flow component measurement:
 - a. Depth Component of Flow – The Contractor shall use ultrasonic depth sensor for primary depth measurement. Pressure depth sensor may be installed for redundancy. Sensors shall have an accuracy of at least 0.5 inches. The range of the pressure transducer shall be the minimum standard range that exceeds the depth of the manhole for each location.
 - b. Velocity Component of Flow – The Contractor shall use a submersible electromagnetic or ultrasonic doppler sensor primary velocity measurement. A surface velocity sensor may be installed for redundancy. Sensors shall have an accuracy of 0.25 feet per second with a range of 1 to 15 fps. If surface velocity meters are installed, the Contractor shall provide a correlation between the surface velocity and the inflow measured velocity.
- 4.4 The flow meters shall meet the requirements of this scope of work and shall be capable of measuring open channel flows with different cross sectional area and non-circular pipes. The following are currently acceptable manufacturers for flow meters:
 - a. Triton + as manufactured by ADS Environmental Services, Huntsville, Alabama
 - b. FI 900 System Meter as manufactured by HACH Company, Loveland, Colorado
 - c. Austin Water approved equal. In order to be an approved equivalent, flow meter devices shall meet the requirements outlined in Section 4.3.a. and 4.3.b.
- 4.5 All flow monitoring equipment shall be located within manholes and all flow monitoring

components shall be suitable for the wastewater environment, including exposure to sewer gases. In the sewer environment, ignitable mixtures of sewer gases may be present under normal conditions, regardless of time. All flow monitoring equipment shall have appropriate safety features and meet industry standards for this sewer environment.

- 4.6 All sensors and probes on flow monitoring equipment shall be new and calibrated at the beginning of the contract. During the contract, the Contractor shall be responsible for maintaining and keeping all meters, sensors, and probes in working condition. If any components are damaged or broken, the Contractor shall have a field crew on site within forty-eight (48) hours and complete the repairs or replacement within seventy-two (72) hours after initial notification. All repairs and replacements of the components in flow meters are considered part of the price submitted and shall not be billed separately.
- 4.7 The modem, and RTU, if provided, shall be compatible with the flow meter. The Contractor shall be responsible for costs associated with the transmission or transfer of data to the FTP site of the City.
- 4.8 Power source shall be solar, AC, or battery operated. The Contractor shall maintain the source of power for the duration of the contract. The Contractor shall be responsible for all costs associated with the power source for the Flow Meter System.
- 4.9 After the City awards the contract and before any flow meter installation starts, the Contractor shall document and examine the hydraulic and site conditions of each of the flow monitoring sites. The Contractor shall be responsible for the selection and determination of the appropriate flow meter and sensors that match the hydraulic and site conditions, submit the documentation to the City for review and comment prior to the installation of the FMS, and make proper modifications and adjustments of the FMS to obtain accurate and reliable data.
- 4.10 Rotating Meters, Level Indication Only

The Contractor shall provide long-range depth sensor and logger devices capable of collecting data at five (5) minute intervals. The Contractor shall furnish the necessary hardware devices to attach the probe to a section of the wastewater manholes and install them. The depth sensor shall meet the following flow component measurement:

- a. Depth component of flow – The Contractor shall use ultrasonic depth sensor for measuring depth of flow in a manhole. The depth measurement will be field verified at installation by the Contractor in accordance with the manufacturer's recommendations and as required to calculate flow data. In addition, one additional level reading shall be taken within one week after installation. At a minimum, the contractor shall conform to the manufacturer published requirements for the following;
 - i. The proper installation of the sensor.
 - ii. The maximum and minimum allowable distance of sensor to liquid level.
- b. The logger shall be able to provide both a depth and flow data. The flow data shall be computed using pre-programmed manning equation where it is appropriate.

The long-range depth sensor to be used shall be capable of measuring open channel flows depth. The Contractor shall provide data in Telog Electronic Data Format (EDF) . The following are currently acceptable long-range depth sensors;

- a. Flow Shark Triton with Long Range Depth Sensors as manufactured by ADS Environmental Services
- b. FLO-Dar Intrinsically Safe Sensor and or FL 900 System with Depth monitoring systems as manufactured by HACH Company
- c. Smart Cover Systems as manufactured by Hadronex, Inc

d. Austin Water approved equal

- 4.11 When purchased or proprietary software is used, the Contractor shall provide software packages or access to the Contractor's system for the loggers to the City at no additional cost for the life of the contract. The City estimates that approximately five City staff will need the software package and/or access to the Contractor's system.

5.0 Contractor Operational Requirements

- 5.1 There are a number of existing flow meters as outlined in Table 1. The Contractor shall be responsible for removing existing FMS components within one (1) month after coordinating with the City and returning them to the City. The Contractor shall notify and coordinate with the City prior to removal so that the City can be present during the removal of all components.
- 5.2 Refer to Tables 2, 3, 4, 5, and 6 for a list of locations of permanent and rotating flow meters. The locations of the temporary flow meters will be designated by the City, as the needs of Austin Water arise and are currently unknown. In all cases, the temporary flow meters will be no more than 30 feet deep or 72 inches in diameter. The Contractor shall be prepared to install FMS at site conditions ranging from busy streets and state highway ROW to isolated creek beds and green fields. Paved roads may not be nearby; therefore, the Contractor shall either carry or drive the equipment off road and possibly remove small amounts of debris and/or sediment from around or inside the manhole for accessibility.
- 5.3 The Contractor shall investigate each of the flow metering sites listed in Tables 2, 3, 4, 5, and 6 to verify if the existing flow condition is suitable for installing the flow meter to record accurate data. If the site condition is not suitable for flow monitoring, the Contractor shall notify the City.
- 5.4 If needed, the City will clean the sewer main once prior to the start of flow monitoring. If prior to the start of the contract, the Contractor determines that the site needs to be cleaned due to the presence of accumulated "large" trash or trash from subsequent storm events, the Contractor shall request in writing and coordinate with the City to clean the sewer main. Depending on the site conditions, the cleaning of each sewer main could take two (2) to four (4) weeks from notice to the City.
- 5.5 During the term of contract, the Contractor shall remove debris, sediment, or any object that alters the performance of the sensor and affects the accuracy of the flow monitoring. This shall include cleaning, removing, and disposing of any large trash including tree limbs, rocks, construction materials, or any large objects that affects the flow monitoring. The trash shall be transported and dumped by the Contractor to dewatering roll-off containers located at the City's Walnut Creek Wastewater Treatment Plant located on 7113 East MLK Blvd., Austin, Texas 78724. The Contractor shall be responsible for removal and reinstallation of the flow meter probes in the sewer main at no additional cost to the City. The Contractor shall also be responsible to collect the verification points according to Sections 5.10, 5.11, and 5.12 after each cleaning and reinstallation. During this period, there shall be no compensation for the Contractor if they cannot meet the 90 percent uptime and accurate data requirements.
- 5.6 In sites where sediment is present, the Contractor shall develop a profile and accurately determine the cross sectional area of the flow at the depth-measuring point. Record the depth of the sediment in the Site Sheet (Table 7). The Contractor shall enter the information into the flow meter so that the computation of the flow quantities has included the necessary adjustment for the presence of silt affecting the flow.
- 5.7 At a minimum of 180 days prior to the end of the contract, Contractor shall follow the transition plan as submitted with the RFP under Tab 12, or, agree to provide the City with a mutually approved transition plan.

- 5.8 The Contractor shall coordinate the permanent installation of objects within the flood plain (outside of manholes) with the local flood plain administrator, in accordance with the local codes, AW Safety Regulations, National Fire Protection Agency 820 Standard, National Electric Code and federal (National Flood Plain Insurance Program) regulations. The Contractor shall be responsible for the cost of such coordination activities. If there is a component of the flow meter system outside of the manhole and the manhole is in the flood plain, then the contractor shall comply with this requirement.
- 5.9 The Contractor shall perform routine maintenance services for each permanent, rotating, and temporary FMS as requested by the City or as needed to insure the 90% uptime requirements. Routine maintenance shall include the following:
- a. Replace battery, scrub sensors, troubleshoot the equipment and restore or replace any defective or non-performing equipment, and calibrate level sensors, as necessary.
- 5.10 For each permanent and rotating flow meter, the Contractor shall perform an initial verification and flow stabilization for each FMS installed and prepare a site-specific velocity profile. This initial verification and flow stabilization shall include the following for each metering site:
- a. Collect verification points for level and velocity when the flow meter is installed:
 - b. Collect verification points for level and velocity three additional times, no later than two weeks after initial installation. Each verification point shall be taken on separate days and at different times during the day.
 - c. Verification points shall consist of a minimum of two (2) level measurements and in general, a total of seven (7) velocity measurements. In certain low flow conditions and with approval of the City, the number of velocity measurements may be reduced on a case by case basis.
 - d. For each metering site, plot both the velocity and depth diurnal curve and develop a velocity profile which accurately represents the velocity as a component of the cross sectional area of the flow at the depth-measuring point.
 - e. Based on the data collected, verify, show and confirm that the flow stream has stabilized and that the verification points taken are on or close to the diurnal curve.
 - f. The contractor shall submit a Flow Stabilization Report per Section 10.1.
- 5.11 For each permanent and rotating flow meter, the Contractor shall perform verification for each FMS as needed, at least every ninety (90) calendar days. Verification shall include the following:
- a. Collect level verification points for the level for each FMS by measuring the level of the flow, with a minimum of two (2) level measurements. Level sensor verification shall include comparing the returned level sensor values against independent devices.
 - b. Collect velocity verification points for the velocity for each FMS by measuring the instantaneous velocity at 20%, 40%, and 80% depths, with a minimum of seven instantaneous velocity measurements as shown in Figure 10, and then integrating them to derive an average for comparison to the meters calculated average velocity. For levels below five inches, measure the instantaneous velocity at 40% depths with a minimum of three instantaneous velocity measurements as shown in Figure 11, and then integrating them to derive an average for comparison to the meters calculated average velocity.

- c. Submit verification records including level and velocity verification to the City with each monthly payment request.
- 5.12 For all temporary meters, the Contractor shall perform verification for each FMS at installation, every two weeks, and at removal. Verification shall include the following:
- a. Collect level verification points for the level for each FMS by measuring the level of the flow, with a minimum of two (2) level measurements. Level sensor verification shall include comparing the returned level sensor values against independent devices.
 - b. Collect velocity verification points for the velocity for each FMS by measuring the instantaneous velocity at 20%, 40%, and 80% depths, with a minimum of seven instantaneous velocity measurements as shown in Figure 10, and then integrating them to derive an average for comparison to the meters calculated average velocity. For levels below five inches, measure the instantaneous velocity at 40% depths with a minimum of three instantaneous velocity measurements as shown in Figure 11, and then integrating them to derive an average for comparison to the meters calculated average velocity.
- 5.13 The Contractor shall perform verifications for each FMS in accordance with the scope of work. Supplemental verifications shall be required under the following conditions. These supplemental verifications will be part of the contract price and at no additional cost to the City.
- a. Verifications shall be performed any time there is a cleaning of sensors or removal of silt in or around the flow meter.
 - b. Verifications shall be performed any time there is a major adjustment or change in the equipment such as, but not limited to replacement of probes, sensors, or meters.
 - c. Verifications shall be performed any time there is a change in the flow environment, such as, but not limited to band movement, sensor movement, or accumulation of significant silt.
 - d. Verifications shall be performed at times when it is required to confirm quality assurance as outlined in Section 8.
 - e. Submit verification records including level and velocity verification to the City with each monthly payment request.
- 5.14 In the event of a major flooding event, emergency maintenance shall be performed by the Contractor to produce accurate data and as required by the Contractor's data analysts or the City's data analysts. In these instances, the Contractor shall have a field crew on site within forty-eight (48) hours for maintenance service and complete the service within seventy-two (72) hours after notification from the City. Measurements, adjustments, and efforts undertaken during site visits shall be logged in a maintenance log specific to that site, which shall be available within three (3) business days after request by the City. When the City determines that a FMS requires the emergency maintenance due to conditions listed, the City will contact the Contractor's data analyst and discuss the concern. The City reserves the right to require the Contractor perform the emergency maintenance without additional cost to the City.
- 5.15 In the event of a major rain event (defined as over 2-inches in 24 hours), the Contractor shall provide processed flow monitoring data within forty-eight (48) hours after the major rain event.
- 5.16 Figure 1 illustrates the data transfer from the meter to the FTP site. The Contractor

shall be responsible to produce the Telog EDF to be transferred to the FTP site. The Contractor shall transmit the data following the City's site naming convention. The City's Telog Module E-AIM3 can only accept flow meter data in the Telog EDF format. The City will not accept any other data format. The Contractor shall be responsible for all costs associated with, the set-up, data transfer and usage of all cell communication.

5.17 For all permanent, rotating, and temporary flow meters, the flow monitoring data shall be submitted to the FTP site and shall include the following information:

- a. Meter Name
- b. Date and Time
- c. Velocity (feet per second) – TV
- d. Flow Depth (inches) – TD
- e. Flow (gallons per minute)* - TQ (*Contractor shall provide the Continuity Equation used in the flow calculation).
- f. Flow (gallons per minute)** Q Manning (** Contractor shall provide the Manning equation used in the flow calculation).
- g. Flow (gallons per minute)*** - Q Sensor (***)Contractor shall provide the Continuity Equation used in the flow calculation for each depth sensor).

5.18 For Rotating Meters, Level Indication Only - The flow data shall be submitted to the FTP site shall include the following information:

- a. Meter Name
- b. Date and Time
- c. Flow Depth (inches) – TD
- d. Flow (gallons per minute)** Q Manning (** Contractor shall provide the Manning equation used in the flow calculation).

5.19 The installation of the FMS and obtaining the data may be performed outside normal business hours of 7:00 a.m. to 6:00 p.m. The flows are dynamic and especially after a rain event. The City will not assist in the flow control or diversion for any installation or maintenance of the FMS. The Contractor will determine when flow levels are acceptable for the installation of the FMS.

5.20 Site Conditions: For permanent and rotating meters, the Contractor, by submitting their proposal, agrees that they have evaluated site conditions and incorporated such impacts into their proposal. The Contractor shall expect some variation of information presented in the Tables. The prices on the Offer Sheet (Section 0601) for Installation and Removal of the meters are for meters of all depths and all sizes of pipes. For temporary meters, the contractor, by submitting their proposal, agrees that they will evaluate site conditions to obtain stable flow monitoring data, prior to the installation of the temporary flow meters.

5.21 Job Site Management: The Contractor shall set up, manage, and restore each job site in a responsible manner that includes but is not limited to maintenance of traffic, pedestrian safety, and property protection. At no time during active progress of work shall the Contractor leave the job site unattended. The Contractor shall request and gain approval from the City for any specific job site work that may extend past one (1) workday.

6.0 Traffic Control and Permits

6.1 Contractor shall be responsible for obtaining Temporary Use of Right of Way Permits (TURP) from the City and the provision of and maintenance of temporary traffic control devices as required by the City of Austin.

6.2 Contractor shall be responsible for obtaining permits for any work performed in the Texas Department of Transportation right of way.

6.3 Contractor shall follow all federal, state and local guidelines, resolutions, and ordinances.

6.4 Permit Application Process: City of Austin Transportation Department for the TURP:

- A. Request for the use of City right-of-way, including sidewalks, traffic lanes, parking lanes or meters, for all purposes, shall be authorized by the Austin Transportation Department. Contractor will only be compensated for the actual permit costs. All other costs associated with the permitting process shall be subsidiary to other work.
- B. Contractor is responsible for submitting an application for the Permit for a TURP. The application shall be submitted online through the Right of Way Management Network (ROWMAN) at www.austintexas.gov/rowman.

Instructions for the process can be found at:

www.austintexas.gov/sites/default/files/files/Transportation/Right_of_Way/temporary-use-permitting.pdf

TURP Permits are required for all work temporarily using City of Austin Right of Way other than excavation, filming, non-construction related parking spaces, or street events. The Contractor shall coordinate with scheduled Right of Way work.

- C. Some typical information that may be required to be provided along with the application will be:
 - a. Approximate time frame of work for each manhole.
 - b. Possibility of intersection work.
 - c. Locations of each manhole and type of closure involved including sidewalk, parking or traffic lane.
 - d. Traffic Control Plan to address each type of closure scenario.
- D. If the installation of FMS at a location disrupts the normal flow of traffic in work areas, the Contractor shall make every effort to minimize the disruption of traffic flow, comply with the City of Austin Transportation Criteria Manual, and Texas Department of Transportation Manual on Uniform Traffic Control Devices. The Contractor is required to use the City of Austin standard details as they apply. If any of these details are not appropriate for a specific work area, the Contractor shall inform the City with appropriate explanation and details.
- E. Contractor is responsible for the appropriate use of standard Traffic Control details that is available online at www.austintexas.gov/department/transportation. The cost associated with this effort will be included in the cost for the installation of the FMS.
- F. If any of these standard Traffic Control details are not appropriate for a specific work area, the Contractor shall inform the City with appropriate details and as required, the City will coordinate to have the City or its designee prepare an Engineered Traffic Control plan for the appropriate Work area. When required by Right of Way Management, the City or its designee will prepare a Traffic Control Plan (TCP) by a Professional Engineer registered in the state of Texas, which shall be submitted to the City ROW Management for review and approval. Contractor shall schedule their work and provide adequate notification and planning for the preparation of Engineered Traffic Control Plans. For the purpose of this scope of work, adequate notice is 4 to 6 weeks in advance of the scheduled work.

6.5 The Contractor shall comply with the requirements of Section 6, Traffic Control and Permits when they are working on City streets.

7.0 Safety

7.1 The Contractor shall follow all applicable OSHA (Occupational and Safety Health Section 0500 Scope of Work, AWU-131

Administration) rules for any jobs performed during this contract. Contractor shall also follow industry standard safety procedures and other safety practices for all work performed under this contract. The Contractor shall be responsible for the safety of their employees and if applicable, any subcontractors at all times. In addition, the Contractor and if applicable, any subcontractors shall provide a safe environment for the driving public and citizens during Contractor's activities.

- 7.2 The Contractor submit their Health and Safety Plan with their proposal, which will be approved by the AW safety officer before any field activities take place. The City and AW safety officer will not accept any liability or release the contractor from any safety responsibilities. The Contractor is responsible for adherence to their Health and Safety Plan throughout the life of the contract.
- 7.3 The Contractor's Health and Safety Plan shall include, but not be limited to, the following:
 - a. Confined Space Safety Plan: The Contractor shall provide confined space access safety equipment, and traffic control devices required to meet Federal, State and Local requirements. The Confined Space Safety Plan shall include details regarding the installation and removal of meters, including during emergency conditions. The Contractor's employees involved in the installation and maintenance of the equipment shall be OSHA Confined Space Entry trained and certified, and shall adhere to federal, state and local rules, regulations, and requirements regarding Confined Space Entry. The Contractor shall submit proof of Confined Space Entry training certifications with their proposal.
 - b. Whenever the Contractor uses the equipment for confined space entry that requires the equipment handler to be trained and certified by the equipment manufacturer, the Contractor shall submit to the Contract Manager the manufacturer certifications for each of the Contractor's employees that use such equipment. The Contractor shall submit these certifications before starting any work.
- 7.4 In the sewer environment, ignitable mixtures of sewer gases can be present under normal conditions, regardless of time. All flow monitoring equipment shall have appropriate safety features and meet industry standards for the sewer environment.
- 7.5 Prior to entering manholes or other structures, the Contractor shall use their calibrated gas detection equipment to determine the presence of toxic, flammable or explosive vapors, and to determine oxygen deficient conditions. The Contractor shall take appropriate remedial measures to protect its workers.
- 7.6 The Contractor shall provide calibrated gas detection equipment equipped with sensors for the expected gases they may encounter and oxygen levels as well as explosive gases. This equipment shall be made available to all employees engaged in field activities. Gas monitors shall be worn at all times during installation and removal of the flow meters.

8.0 Processed Data, Quality Assurance, and Quality Control

- 8.1 The data collected under this contract is vital to Austin Water's modelers system planning. Accordingly, the Contractor shall perform their own Quality Assurance and Quality Control as detailed in this section and submit "processed" data to the City. The Contractor shall demonstrate to the City that every attempt has been made to achieve quality data for every metering site.
- 8.2 The Contractor shall have a Quality Assurance and Quality Control Plan and be able to implement the process for accurate raw and processed data delivery. The Contractor's Quality Assurance and Quality Control Plan shall be submitted with their proposal and shall be approved by the City before any field activities take place. The Contractor is responsible for adherence to their Quality Assurance and Quality Control Plan

throughout the term of the entire contract.

8.3 The Contractor's Quality Assurance and Quality Control Plan shall include at least the following:

- a. Procedures for initial meter installation, setup, and calibration, including defining initial set up and troubleshooting.
- b. Procedures for calibrating meters and QA/QC procedures for verifying data.
- c. Procedures for developing the initial velocity profile as outlined in Section 5.10.
- d. Equipment used for initial calibration as well as equipment used during verification checks.
- e. Procedures for verification checks on meters as outlined in Sections 5.11 and 5.12 including how data is measured, collected and checked.
- f. Procedures detailing how the Contractor will provide "processed" flow meter data to the City. For the basis of this scope of work, "processed" flow meter data is data, which has been edited and processed by a data analyst to fill in any gaps or downtime in data.
- g. Procedures on how the Contractor shall adjust, if required, any flow meter data for the City. For the basis of this scope of work, adjustment of the data involves moving the database upward or downward based upon verification points taken in the field as required in Sections 5.11 and 5.12.

8.4 The Contractor's data analyst shall perform a daily comprehensive review of collected data. The data analyst shall assess any maintenance or monitor performance issues and if required shall dispatch a crew to resolve the issue. Items to review daily include:

- a. Verify all sensors are working correctly, including identifying invalid data resulting from sensors that may be affected by debris.
- b. Identify all data gaps and corresponding equipment service needs.
- c. Review the accuracy of all data, verify diurnal patterns and reasonable depths and velocities, including identifying any data that is outside expected and normal operating ranges. Examples include band movement, sensor movement, data shifts, and accumulated silt.
- d. Use various analytical tools such as hydrographs, scattergraphs, and flow balancing methods to verify the accuracy and precision of the flow data.
- e. Review all field site visits and verification points taken during these site visits, including identifying all field measurements that are outside expected operating ranges.

8.5 The Contractor's data analyst shall edit and adjust all raw data into a "processed" format to be submitted monthly to the City of Austin. The data analyst shall use industry standards and data diagnostic tools such as hydrographs and "scattergraphs" to edit and adjust the raw data. All "processed" data shall be in accordance with the Contractor's Quality Assurance and Quality Control Plan.

8.6 As outlined in Section 5.15, in the event of a major rain event (defined as over 2-inches in 24 hours) the Contractor's data analyst shall edit and adjust all raw data into a "processed" format to be submitted to the City of Austin. This processed data shall include I/I flow rates, peaking factors, and the identification of any significant red flags or concerns. This major rain event data shall be submitted within forty-eight (48) hours

after the major rain event. All “processed” data for these major rain events shall be in accordance with the Contractor’s Quality Assurance and Quality Control Plan.

- 8.7 The Contractor shall submit a Quality Assurance and Quality Control Report monthly with each invoice which shall include, but not be limited to, the following:
- a. Verification checks on meters as outlined in Sections 5.11 and 5.12.
 - b. Provide a report identifying the raw and processed data explaining detailed steps taken and performed to obtain this data. This report should include but not be limited to the following sections:
 - i. Percentage of edited data.
 - ii. **Hydraulic explanation for all data with anomalies:** Anomalies with flow data include, but are not limited to electronic, debris, shifts, trends, or gaps. In these cases, the data shall be edited and adjusted per industry standards and in accordance with the Contractor’s Quality Assurance and Quality Control Plan with an explanation provided on all adjustments. In the case of significant anomalies, the City reserves the right to request the Contractor to poll the meter and obtain the data.
 - iii. **Verification of flow reported in meters that are downstream of other meters:** This verification refers to a balanced distribution of flow reported in the meters in the system during dry weather conditions. Based upon system conditions, land use standards, and standard operation procedures, the contractor shall provide an explanation for any meters which do not flow balance. Flow balance refers to an increasing flow reported by the meters that are downstream of other meters. For example, in Figure 12, the Q at FM3 shall be larger than $Q_{FM1} + Q_{FM2} + \text{estimated } Q$ for the wastewater basin WWB3. An estimate for the Q for flow for a wastewater basin will be provided by Systems Planning.
 - iv. An explanation for any adjustments or hydraulic shifts which result in an increase or decrease in level or velocity data as shown in Figures 7 and 8.
- 8.8 Verification points shall be taken as outlined in Sections 5.11 and 5.12 and in accordance with the scope of work. Based on the data, if there is a need to verify and confirm the quality of the flow metering data the Contractor shall perform additional verifications per Sections 5.11 and 5.12 at no additional cost to the City. This would occur under the following situations:
- a. Each verification point should be on or close to the diurnal curve. If the most recent verification points are greater than 15% of the diurnal curve or of the previous reading, the City reserves the right to request the Contractor collect additional verification points to confirm and verify that the data is correct.
 - b. If the raw data has over 15% gaps, the City reserves the right to request the Contractor collect additional verification points to confirm and verify that the data is correct.
 - c. If the raw data is outside expected and normal operating ranges and the data is greater than 15% of normal operating ranges, the City reserves the right to request the Contractor collect additional verification points to confirm and verify that the data is correct.
 - d. If the difference between the primary sensors and the backup or redundant sensors is greater than 15%, the City reserves the right to request the Contractor collect additional verification points to confirm and verify that the data is correct.

- e. If the verification of flows and balanced distribution of flow reported in the meters in the system during dry weather conditions is greater than 15%, the City reserves the right to request the Contractor collect additional verification points to confirm and verify that the data is correct.

9.0 Acceptance of Work and Payment

- 9.1 The Contractor shall post raw data automatically every hour in Telog EDF file format to a secured FTP site provided by the City. All processed data shall be submitted with the monthly invoice.
- 9.2 The raw data delivered to the City shall be a minimum 90% of up time and 90% accurate data for each meter on a monthly basis for the monitoring period. Up time and accurate data are considered raw data without any of the following;
 - a. Missing Data as shown on Figure 2.
 - b. Flat Line data as shown in Figure 3.
 - c. Drifts Data as shown in Figure 4.
 - d. Spiked Data as shown in Figure 5.
- 9.3 At each monthly payment request, the Contractor shall include, at a minimum:
 - a. A report which identifies which sewer meter locations that have achieved 90% "up time" and accurate data and which location did not achieve the 90% up time and accurate data.
 - b. Verification points for each of the FMS location collected during the month in Telog EDF format transferred to the FTP site.
 - c. Processed data for 100% in Telog EDF format transferred to the FTP site.
 - d. A report identifying the raw and processed data explaining what has been performed to obtain this data, including percent edited data and adjustments.
 - e. Annotations to identify changes in metering in Telog EDF format transferred to the FTP site. Annotations shall include changes in sensor type; band, sensor, or meter repair or replacement; or changing between continuity and manning flow rate.
 - f. Maintenance log sheets for each site.
 - g. Updated project schedule.
 - h. QA/QC Reports in Accordance with Section 8.
- 9.4 The Contractor shall only be paid for the percentage of "up time" and accurate raw data for each individual site. For those sites that are less than 90% "up time" and accurate data, no payment will be made. Monthly payment will be based upon total number of flow meter sites at or in excess of 90% "up time" and accurate data. For example, during any month during the contract period, if there are only 80 out of 100 of the flow meter sites with 90% "up time" raw data for each of the individual sites, the Contractor shall invoice only the cost for the month for 80 of the flow meter sites. The Contractor shall provide the necessary verification points and the "processed" data for the sites eligible for invoicing. Please note that the reduced invoice amount shall not relieve the Contractor of the contractual responsibility to meet the required "up time." The Contractor shall notify Austin Water in writing if they have tried to remedy the situation within one (1) month and are not able to maintain 90 percent up time. The City will determine at that time if a change in location is appropriate. The Contractor will be in breach of contract when there is any flow meter location that cannot achieve 90 percent uptime for three consecutive months in a contract period.

Depth uptime and raw Q uptime are defined below:

- a. Raw Depth Uptime: depth uptime shall be defined as the number of measurement intervals where a flow value can be calculated from a measured depth for a common time interval divided by the total number of measurement intervals in the reporting period.
- b. Raw Q uptime shall be defined as the number of measurement intervals where a flow value can be calculated from both the measured velocity and the measured depth for a common time interval divided by the total number of measurement intervals in the reporting period. If either the measured depth or measured velocity do not meet the uptime or accurate data requirements, a raw flow value cannot be calculated as shown in Figure 9. For the raw Q to be counted in uptime, it shall have both a simultaneous depth and velocity readings.

10.0 Reports

- 10.1 For permanent and rotating meters, within two (2) months of receiving the notice to proceed from the City, the Contractor shall demonstrate that flow has stabilized and submit a Flow Stabilization Report to the City for review and comment. This report shall include pre-installation site conditions, site pictures, device serial numbers, manholes numbers, GPS coordinates (NAD 83) of manhole (1-3 cm Real Time Kinematic horizontal and vertical accuracy), site names and any additional information deemed pertinent by the Contractor.

For temporary meters, within two (2) weeks of receiving the notice to proceed from the City, the Contractor shall demonstrate that flow has stabilized and submit a Flow Stabilization Report to the City for review and comment. This report shall include pre-installation site conditions, site pictures, device serial numbers, manholes numbers, GPS coordinates (NAD 83) of manhole (1-3 cm Real Time Kinematic horizontal and vertical accuracy), site names and any additional information deemed pertinent by the Contractor

The City will review and comment on the Flow Stabilization Report within 2 weeks. The Flow Stabilization Report shall be in format agreed upon by the City and Contractor and shall include, but not be limited to, the following:

- a. For each metering site, a plot of both the velocity and depth diurnal curve as shown on Figure 6 with four (4) verification points each shown to be on or close to the diurnal curve. Each verification point shall be taken on separate days and at different times of the day.
- b. Site Sheet as shown on Table 7.

For permanent and rotating meters, after the City approves the Flow Stabilization Report, the Contractor shall commence collecting flow data. Only data collected from that point on will be eligible for a payment request consideration.

For temporary meters, after the Flow Stabilization Report is submitted to the City, the next calendar day may be a start date for eligible payment request consideration if agreed upon by the City and the Contractor. In the event, there is not an agreement between the City and Contractor, the start date will be after the City approves the Flow Stabilization Report.

- 10.2 At the initial progress meeting, the Contractor shall submit a preliminary schedule that shall include critical milestones for review and approval. The approved schedule shall serve as the baseline for this contract. At each monthly payment request, the Contractor shall submit an updated project schedule indicating progress achieved to date for each task.

- 10.3 With the monthly payment request, the Contractor shall submit to the City a Quality

Assurance and Quality Control Report per Section 8 of this scope of work. This shall include an "up time" data table to demonstrate compliance with the uptime requirement, including a thorough explanation of the reasons for not meeting the up-time requirement at any site.

11.0 Contractor Personnel Requirements

Unless specified otherwise, the Contractor shall provide distinct personnel for each of the roles listed below.

- 11.1 Firm Experience: Contractor shall have at least seven (7) years or more of experience in working with and servicing wastewater flow meters and providing wastewater flow monitoring services. Contractor shall detail out the information required in Tab 7 & Tab 8 in Section 0600 Proposal Preparation Instructions. Experience shall include providing flow-monitoring services for projects with a minimum of one hundred (100) meters per project for at least three (3) projects. The Contractor shall have experience with pipe sizes ranging from six (6) to ninety six (96) inches. The Contractor shall have at least five (5) years experience with flow balancing for a minimum of one hundred (100) meters per project for at least three (3) projects. Experience in flow-monitoring services shall include wastewater flow meter installation, removal, calibration, maintenance, data collection, data verification, Telog EDF data retrieval, Telog EDF data transfer, flow data analysis, quality assurance, and quality control.
- 11.2 Equipment Resources: The Contractor shall detail the equipment to be used to complete the work specified in this solicitation, including equipment specification sheets in Tab 9 in Section 0600 Proposal Preparation Instructions. In addition, the Contractor shall describe their ability to obtain replacement flow meters during the term of the contract. The City prefers a Contractor that will maintain immediately accessible, local inventory equal to at least fifty percent (50%) of the total flow meters to be installed. The Contractor shall have direct experience with the flow meters to be installed.
- 11.3 Data Delivery: The Contractor shall detail the method by which the data will be transferred from the meter to the City's FTP site and the City's Enterprise Server in Tab 10 in Section 0600 Proposal Preparation Instructions. The Contractor shall include their ability to address and resolve issues with data transfer. The Contractor shall have Telog Enterprise software, licenses, and Telog Enterprise support throughout the contract period.
- 11.4 Personnel Qualifications and Resources: The Contractor shall identify key staff that will be assigned to this contract and provide a resume of not more than one (1) page for each staff member, describing their professional qualifications (to include education, licenses, certifications for working in confined spaces, and associations) and relevant experience. At a minimum, the staff qualifications and quantities shall meet the requirements stated in this specification. If applicable, identify any subcontractors included as part of this contract, their role and relevant experience, including an abbreviated, one half page, resume for key staff of subcontractors. If subcontractors are to be utilized, reference the No Goals Form (Section 0900) for further instructions.
- 11.5 Staff: The Contractor shall utilize an experienced project manager and experienced field crews to conduct the work. Contractor field crews shall consist of a minimum of two (2) employees. However, in confined space entry in order to comply with OSHA, State and City regulations, additional employees may be required. The field crew shall wear easily recognizable uniforms containing prominently displayed picture identification badges with the Contractor's name and employee name. Field crews shall carry a letter describing the project and work to be performed.
- 11.6 Project Manager: The Contractor's project manager shall manage the entire project on a day-to-day basis on behalf of the Contractor and ensure that assessments are carried out in a professional manner and in compliance with the assessment. The

project manager shall have a minimum of five (5) years of experience managing similar contracts, and shall be familiar with the applicable regulations and safe and proper flow meter operation procedures. The Contractor's project manager shall be the primary point of contact and shall be available to meet with the City on a monthly or more frequent basis to update progress against the assessment schedule and discuss any issues.

- 11.7 Field Operation Manager: Each field crew shall be led by the Contractor's field operations manager. The field operations manager shall be onsite continuously when FMS are being installed, maintained, worked on, removed, etc., except for City observed holidays and vacations during which the Contractor shall provide a qualified substitute pre-approved by the City. The field operations manager shall have a minimum of three (3) years of experience as a crew leader overseeing installation, operation and maintenance of flow meters in large diameter wastewater mains and be familiar with applicable regulations and proper flow meter operations procedures.
- 11.8 Field Technicians: Each field crew shall include one or more Contractor's field technicians. Field Technicians shall be onsite continuously when flow meters are installed, maintained, operated, removed and other field work is being performed. Field technicians shall have a minimum of one (1) year of experience with installation, operation and maintenance of flow meters in large diameter wastewater mains and be familiar with applicable regulations and safe and proper flow meter operations procedures. Field technicians shall have Safety, First Aid, and Confined Spaced Entry Certifications.

Note: One individual may simultaneously serve as Project Manager and Field Operations Manager providing the above qualifications are met.

- 11.9 Data Analyst: The Contractor's data analyst performing quality control of the data including "correcting the database" shall have a minimum of seven (7) years of direct experience in flow monitoring data analysis and management. The data analyst shall have a minimum of three (3) years of direct experience with Telog EDF. The data analyst shall have at least five (5) years experience with flow balancing for a minimum of one hundred (100) meters per project on at least three (3) projects. Trained data analysts shall be experienced in processing and analyzing flow data from wastewater systems, including experience with hydrographs, scattergraphs, and flow balancing methods. The Contractor's data analyst shall review and evaluate all depth and velocity readings for each flow meter site on an ongoing basis as data is collected and, in general, no later than twenty-four (24) hours after data is collected.

12.0 Omissions

- 12.1 It is the intent of this scope of work to acquire complete wastewater flow monitoring services for the City. Any services that have been omitted from this scope of work which are clearly necessary for the completion and legal operation of this service are to be considered a requirement, although not directly specified or called for in this scope of work. These omissions shall be brought to the immediate attention of the Buyer listed in the solicitation documents and a determination shall be made as to whether the requirements are to be incorporated into the solicitation.

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SOLICITATION NUMBER: RFP EAD0128**

1. 1. PROPOSAL FORMAT

Submit one original paper copy and an electronic copy of the original proposal in PDF version on six separate flash drives. The original proposal shall contain ink signatures and shall be typed on standard 8 1/2" X 11" paper, double-sided, and have consecutively numbered pages.

The proposal itself shall be organized in the following format and informational sequence. Use tabs to divide each part of the Proposal and include a Table of Contents:

Section I

Tab 1 – City of Austin Purchasing Documents - Complete and submit the following documents:

- A. Signed Offer Sheet
- B. Section 0510 Exceptions
- C. Section 0601 Price Proposal
- D. Section 0605 Local Business Presence Identification Form
- E. Section 0815 Living Wages Certification
- F. Section 0835 Non-Resident Bidder Provisions Form
- G. Section 0900 Minority and Women-Owned Business Enterprise (MBE/WBE) Procurement Program No Goals Form

Tab 2 – Authorized Negotiator: Include name, address, and telephone number of person in your organization authorized to negotiate Contract terms and render binding decisions on Contract matters.

Tab 3 – Exceptions: List any exceptions that your company is making to the solicitation on form 0510 of the solicitation packet. Exceptions not listed on the form may not be considered. Be advised that exceptions to any portion of the Solicitation may jeopardize acceptance of the Proposal.

Tab 4 – Proposal Acceptance Period: All proposals are valid for a period of one hundred and eighty (180) calendar days subsequent to the RFP closing date unless a longer acceptance period is offered in the proposal

Tab 5 – Executive Summary: Proposer shall provide an Executive Summary of three (3) pages or less, which gives in brief, concise terms, a summation of the proposal.

Tab 6 – Business Organization: State full name and address of your organization and identify parent company if you are a subsidiary. Specify the branch office or other subordinate element which will perform, or assist in performing, work herein. Indicate whether you operate as a partnership, corporation, or individual. Additionally, specifically include the following:

- Is your firm legally authorized, pursuant to the requirements of the Texas Statutes, to do business in the State of Texas?
- List and describe all bankruptcy petitions (voluntary or involuntary) which have been filed by or against your firm, its parent or subsidiaries, predecessor organization(s), or any wholly owned subsidiary during the past five (5) years. Include in the description the disposition of each such petition.
- List all claims, arbitrations, administrative hearings, and lawsuits brought by or against your firm, its predecessor organization(s), or any wholly owned subsidiary during the last five (5) years. The list shall include all case names; case, arbitration, or hearing identification numbers; the name of the project over which the dispute arose; a description of the subject matter of the dispute; and the final outcome of the claim.

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- List and describe all criminal proceedings or hearings concerning business related offenses in which your firm, its principals, officers, predecessor organization(s), or wholly owned subsidiaries were defendants.
- Has your firm ever failed to complete any work awarded to you? If so, where and why?
- Has your firm ever been terminated from a contract? If so, where and why?

Tab 7 – Prior Experience & References: Provide detailed description of applicable prior experience associated with flow monitoring on pipe sizes ranging from six (6) to ninety six (96) inches. Detailed experience shall be described for each of the following topics: flow-monitoring services including wastewater flow meter installation, removal, calibration, maintenance, data collection, data verification, Telog EDF data retrieval, Telog EDF data transfer, flow data analysis, quality assurance, and quality control. Describe only relevant experience and individual experience for personnel who will be actively engaged in the project. Do not include corporate experience unless personnel assigned to this project actively participated.

Provide a minimum of three (3) customer references services for projects with a minimum of one hundred (100) meters per project equivalent to the size and scope described in this RFP. All client reference information must be supported and verified. Reference contacts must be aware that they are being used and agreeable to City interview for follow-up.

The City may solicit from previous clients, or any available sources, relevant information concerning Proposer's record of past performance. Provide references to any sources in active use by the user community of the proposed solution.

References shall include the following information:

- Name of Agency
- Number of Flow Meters
- Contact name – agency Project Manager
- Contact telephone number and email
- Year project took place and length of project
- Budget/award amount of project
- Scope and magnitude of project
- Was project completed on time and in budget?

Tab 8 – Personnel Qualifications and Resources: Include names and qualifications of all professional personnel including the Project Manager, Field Operations Manager, Field Technicians, and Data Analyst who will be assigned to this project. State the primary work assigned to each person and the percentage of time each person will devote to this work. Identify key persons by name and title. Provide a resume of not more than one (1) page for each staff member, describing their professional qualifications (to include education, licenses, certifications for working in confined spaces, and associations) and relevant experience. Provide details on resources the firm has available for this project.

Tab 9 – Equipment Resources: The Contractor shall detail the specific equipment proposed on the project, including equipment specification sheets and details on reliability and accuracy of the flow meters, probes, sensors, and corresponding flow monitoring equipment. In addition, the Contractor shall describe their ability to obtain and provide replacement flow meters and parts during the term of the contract. The Contractor shall also provide equipment details on Telog Enterprise software and interaction and transferring data to the City's FTP site.

Tab 10 – Project Approach and Processing Data: This section shall describe the offeror's understanding of the City's requirements, the approach and/or methodology to be employed, and a work plan for accomplishing the results proposed. Provide details on how the data will be collected, verified, and checked and methods and procedures for field verifications. Include details on monitoring raw data, when site visits will be performed, details and steps how raw data will be processed for final data, and procedures on how the Contractor shall adjust, if required, any flow meter data for the City. The Contractor shall detail the method by which the data

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will be transferred on an hourly basis from the meter to the City's FTP site and the City's Enterprise Server. Provide details and examples of work products and reports as listed in Section 0500 Scope of Work, Item 10.0 Reports.

Tab 11 – Plans: In accordance with Section 0500 Scope of Work, Item 7.0 and Item 8.0, the Contractor shall submit their Health and Safety Plan and their Quality Assurance, and Quality Control Plan with their proposal. Under this Tab, submit your plans and describe in detail and provide examples of the processes and procedures your company does to provide a safe working environment and reliable and quality flow monitoring data. Each of these two plans are described in greater detail below. Note: this tab is limited to a maximum of 100 pages.

Provide a high level overview of your proposed Health and Safety Plan including at least the following:

- Confined Space Safety Plan
- Proof of Confined Space Entry training certifications

Provide a high level overview of your proposed Quality Assurance and Quality Control Plan including at least the following:

- Procedures for initial meter installation setup, and calibration, including defining initial set up and troubleshooting should be in conformance with the manufacturer's recommendation.
- Procedures for calibrating meters should be in conformance with the manufacturer's recommendation.
- Procedures for developing the initial velocity profile.
- Procedures for flow balancing.
- Procedures for addressing data anomalies.

Tab 12 – Schedule: Provide a detailed proposed project schedule by task with due dates. Reference 3.3 in Section 0500 Scope of Work. Contractor shall also include a detailed transition plan addressing equipment removals, service expectation, and transition to a new Contractor (if applicable) at the end of the contract. Transition plan shall address any outstanding issues and what steps will be taken to ensure Austin Water is fully functional until the contract close out is complete.

Tab 13 – Innovations, Cost Savings, and Value Added: As outlined in this Request for Proposal, the City is requesting a comprehensive flow monitoring program. Under this tab, the Contractor can propose innovations, potential cost saving, and other value added items for consideration by the City. Include details on the proposed concept, benefits, risks, and potential cost savings.

Tab 14 – Compliance: A statement of your compliance with all applicable rules and regulations of Federal, State and Local governing entities. The Proposer must state his compliance with terms of this Request for Proposal (RFP).

Section II

Part I - Local Business Presence: The City seeks opportunities for businesses in the Austin Corporate City Limits to participate on City contracts. A firm (Offeror or Subcontractor) is considered to have a Local Business Presence if the firm is headquartered in the Austin Corporate City Limits, or has a branch office located in the Austin Corporate City Limits in operation for the last five (5) years, currently employs residents of the City of Austin, Texas, and will use employees that reside in the City of Austin, Texas, to support this contract. The City defines headquarters as the administrative center where most of the important functions and full responsibility

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for managing and coordinating the business activities of the firm are located. The City defines branch office as a smaller, remotely located office that is separate from a firm's headquarters that offers the services requested and required under this solicitation. Points will be awarded through a combination of the Offeror's Local Business Presence and/or the Local Business Presence of their subcontractors. Evaluation of the Team's Percentage of Local Business Presence will be based on the dollar amount of work as reflected in the Offeror's MBE/WBE Compliance Plan or MBE/WBE Utilization Plan. Specify if and by which definition the Offeror or Subcontractor(s) have a local business presence.

Part II - Proprietary Information: All material submitted to the City becomes public property and is subject to the Texas Open Records Act upon receipt. If a Proposer does not desire proprietary information in the proposal to be disclosed, each page must be identified and marked proprietary at time of submittal. The City will, to the extent allowed by law, endeavor to protect such information from disclosure. The final decision as to what information must be disclosed, however, lies with the Texas Attorney General. Failure to identify proprietary information will result in all unmarked sections being deemed non-proprietary and available upon public request.

Part III – Proposal Preparation Costs: All costs directly or indirectly related to preparation of a response to the RFP or any oral presentation required to supplement and/or clarify a proposal which may be required by the City shall be the sole responsibility of the Proposer.

Part IV - Price Proposal: Information described in the following subsection is required from each Proposer. A firm fixed price or not-to-exceed Contract is anticipated. Proposer shall submit one printed original of the completed price proposal provided in Section 0601, Price Proposal Sheet in the original paper copy response of the RFP.

Proposer shall provide pricing for each base item and optional item listed in Section 0601 Price Proposal in order to be considered for award. Failure to submit pricing for each item, using one total price for base items and optional items instead of breaking it out per item, or failure to use the form provided will result in the Offeror being disqualified and not eligible for award. Items listed as "Optional Items" shall be at the City's discretion based on available funding each year. Proposers are required to provide pricing for all items, including optional items. 30 points will be awarded for base item pricing and 10 points will be awarded for optional item pricing for a total of 40 points for total evaluated price.

- i. If applicable, travel expenses by the Contractor shall be included in the total contract price and will not be paid separately.

Section III

1. EVALUATION FACTORS AND AWARD

A. **Competitive Selection:** This procurement will comply with applicable City Policy. The successful Proposer will be selected by the City on a rational basis. Evaluation factors outlined in Paragraph B below shall be applied to all eligible, responsive Proposers in comparing proposals and selecting the Best Offeror. Award of a Contract may be made without discussion with Proposers after proposals are received. Proposals should, therefore, be submitted on the most favorable terms.

B. **Evaluation Factors:**

- i. 100 points.
 - (1) Total Evaluated Price (reference Section II Part IV) – 40 Points Total. Up to 30 points will be awarded for base item pricing and up to 10 points will be awarded for optional item pricing. Proposer shall provide pricing on each line item for both base items and optional items in order to be considered for award.

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- (2) Plans including Health and Safety and Quality Assurance and Quality Control (reference Section I Tab 11) – 20 points
- (3) Prior Experience, Personnel Qualifications and Resources (reference Section I Tab 7 and Tab 8) – 15 Points
- (4) Project Approach and Processing Data (reference Section I Tab 10) – 10 Points
- (5) Equipment Resources (reference Section I Tab 9) – 5 Points
- (6) LOCAL BUSINESS PRESENCE (Maximum 10 points)

Team's Local Business Presence	Points Awarded
Local business presence of 90% to 100%	10
Local business presence of 75% to 89%	8
Local business presence of 50% to 74%	6
Local business presence of 25% to 49%	4
Local presence of between 1 and 24%	2
No local presence	0

ii. Interviews, Optional. Interviews may be conducted at the discretion of the City. The City will score proposals based on the items listed above. The City may select a “short list” of Proposers based on those scores. Short listed Proposers may be invited for interviews with the City. The City reserves the right to rescore short listed proposals as a result of the interviews and to make an award recommendation on that basis. The City reserves the right to negotiate the actual contract scope of work and price after submission. Maximum 25 points.



**ADDENDUM
CITY OF AUSTIN, TEXAS**

Solicitation: EAD0128

Addendum No: 1

Date of Addendum: 7/7/16

This addendum is to incorporate the following questions and answers to the above referenced solicitation:

1.0 Questions and Answers:

- 1.1 (Q) Per Section 0500 Scope of Work, Item 4.2, if a modem is used is it required to be 3G?.
- (A) Austin Water (AW) is not specifying the type of modem to be required as long as the information is transmitted to AW that meets the performance requirements as defined in the Scope of Work.
- 1.2 (Q) Do the current meters listed in table 1 have to be removed by the current contractor?
- (A) The meters listed in table 1 are City of Austin meters. The Contractor for this contract shall be responsible to remove these meters according to the Scope of Work.
- 1.3 (Q) Is the price submitted firm for the life of the contract?
- (A) Pricing is required to be firm for the first 12-months of the contract. Price increase or decrease requests after the first 12-months shall follow the Economic Price Adjustment clause in Section 0400 Supplemental Purchasing Provisions.
- 1.4 (Q) Per Section 0500 Scope of Work, Item 4.6, do only the sensors and probes have to be new and calibrated or is the meter is also required to be new and calibrated. Will the meters need a current factory calibration certificate?
- (A) All sensors and probes shall be new. Meters can be used meters but need to be calibrated and maintained in good working condition to meet the original manufacturer's requirements as well as the performance and function requirements of this Contract. Used meters require a current factory calibration certificate. The City reserves the right to request new meters if any meter failed to provide quality readings meeting the Contract requirements.
- 1.5 (Q) How will price be evaluated?
- (A) Up to 30 points will be awarded for base item pricing and up to 10 points will be awarded for optional item pricing, however, all items have to be priced in order to be considered for award. The lowest offeror for total base item pricing will be awarded the maximum 30 points and the other offerors will be awarded points on a prorated basis. The lowest offeror for total optional item pricing will be awarded the maximum 10 points and the other offerors will be awarded points on a prorated basis.
- 1.6 (Q) Per Section 0500 Scope of Work, Item 8.6, please define I/I flow rates.
- (A) Item 8.6 has been replaced and shall now read: As outlined in Section 5.15, in the event of a major rain event (defined as over 2-inches in 24 hours) the

Contractor's data analyst shall edit and adjust all raw data into a "processed" format to be submitted to the City of Austin. This processed data shall include flow rates, peaking factors (peak wet weather flow / average daily dry weather flow), and the identification of any significant red flags or concerns. This major rain event data shall be submitted within forty-eight (48) hours after the major rain event. All "processed" data for these major rain events shall be in accordance with the Contractor's Quality Assurance and Quality Control Plan.


- 1.7 (Q) In looking at Section 0601 Price Proposal, if velocity is not provided, will the Contractor still be paid?
(A) If the velocity is not provided, the Contractor will not be paid. For payment based on Raw Depth Uptime, the Contractor shall provide flow monitoring data, including level, velocity, and flow, for permanent, rotating, and temporary meters as outlined in Item 5.17 of the Scope of Work. The Contractor shall provide verification points for level and velocity as described in Sections 5.11 and 5.12 in the Scope of Work. The City reserves the right to request additional verification points for level and velocity as described in Section 8.8 in the Scope of Work. The Contractor shall provide QA/QC for level, velocity, and flow as described in Section 8.7.
- 1.8 (Q) The City is requesting that collected data be sent to the FTP site on an hourly basis; this requirement could greatly impact the battery life of each meter and will increase the required maintenance significantly. Can this requirement be modified to every 4 hours?
(A) Item 4.1 of the Scope of Work specifies transfer of the data on an hourly basis.
- 1.9 (Q) Can there be any lapse of time from when the data is initially uploaded to the contractor's server to the distribution of the data to the City's FTP site?
(A) Item 4.1 of the Scope of Work specifies transfer of the data on an hourly basis.
- 1.10 (Q) As each site identified by Tables 1, 2, 3, 4, 5 and 6 will require field evaluations to determine if any issues exist that will increase the meter installation and maintenance costs can the submittal date be extended?
(A) See clarification 2.5 below.

2.0 Clarifications

- 2.1 The meeting sign in sheet has been added.
2.2 Section 0601 Price Proposal has been updated to reflect changes.
2.3 A location month (as referenced in Section 0601 Price Proposal) has been defined as the cost per meter, per location, per month it is in place.
2.4 Section 0500 Scope of Work, Item 9.4 shall now also include: The Contractor shall provide flow monitoring data, including level, velocity, and flow, as outlined in Sections 5.16 and 5.17.
2.5 The City has extended the proposal due date and time to 7/19/16, 2 PM, Central time.

3.0 ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

APPROVED BY:


Erin D'Vincent, Senior Buyer Specialist
Purchasing Office, 512-974-3070

7/7/16
Date

ACKNOWLEDGED BY:

P. Jeffrey Plymale
Name


Authorized Signature

7/8/2016
Date

RETURN ONE COPY OF THIS ADDENDUM TO THE PURCHASING OFFICE, CITY OF AUSTIN, WITH YOUR RESPONSE OR PRIOR TO THE SOLICITATION CLOSING DATE. FAILURE TO DO SO MAY CONSTITUTE GROUNDS FOR REJECTION.



**CITY OF AUSTIN
PURCHASING OFFICE
EXCEPTIONS**

Solicitation Number: RFP EAD0128

The City will presume that the Offeror is in agreement with all sections of the solicitation unless the Offeror takes specific exception as indicated below. Complete the exception information indicating each exception taken, provide alternative language, and justify the alternative language. The City, at its sole discretion, may negotiate exceptions that do not result in material deviations from the sections contained in the solicitation documents. Material deviations as determined by the City may result in the City deeming the Offer non-responsive. The Offeror that is awarded the contract shall be required to sign the contract with the provisions accepted or negotiated.

RJN Group, Inc. has no exceptions.

Place this attachment in Tab 3 of your offer. Copies of this form may be utilized if additional pages are needed.

Indicate:

- ☐ **0300 Standard Purchase Terms & Conditions**
- ☐ **0400 Supplemental Purchase Provisions**
- ☐ **0500 Scope of Work**

Page Number	Section Number	Section Description
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Alternative Language:

Justification:

Intentionally left blank for Section 0601 Pricing Form
per RFP Section 0600 Proposal Preparation Section II, Part IV

Intentionally left blank for Section 0601 Pricing Form
per RFP Section 0600 Proposal Preparation Section II, Part IV

Intentionally left blank for Section 0601 Pricing Form
per RFP Section 0600 Proposal Preparation Section II, Part IV

Intentionally left blank for Section 0601 Pricing Form
per RFP Section 0600 Proposal Preparation Section II, Part IV

Intentionally left blank for Section 0601 Pricing Form
per RFP Section 0600 Proposal Preparation Section II, Part IV

Section 0605: Local Business Presence Identification

A firm (Offeror or Subcontractor) is considered to have a Local Business Presence if the firm is headquartered in the Austin Corporate City Limits, or has a branch office located in the Austin Corporate City Limits in operation for the last five (5) years, currently employs residents of the City of Austin, Texas, and will use employees that reside in the City of Austin, Texas, to support this Contract. The City defines headquarters as the administrative center where most of the important functions and full responsibility for managing and coordinating the business activities of the firm are located. The City defines branch office as a smaller, remotely located office that is separate from a firm's headquarters that offers the services requested and required under this solicitation.

OFFEROR MUST SUBMIT THE FOLLOWING INFORMATION FOR EACH LOCAL BUSINESS (INCLUDING THE OFFEROR, IF APPLICABLE) TO BE CONSIDERED FOR LOCAL PRESENCE.

NOTE: ALL FIRMS MUST BE IDENTIFIED ON THE MBE/WBE COMPLIANCE PLAN OR NO GOALS UTILIZATION PLAN (REFERENCE SECTION 0900).

USE ADDITIONAL PAGES AS NECESSARY

OFFEROR:

Name of Local Firm	RJN Group, Inc.	
Physical Address	111 West Anderson Lane, Suite D203A, Austin, Texas 78752	
Is your headquarters located in the Corporate City Limits? (circle one)	Yes	No
or		
Has your branch office been located in the Corporate City Limits for the last 5 years?	Yes	
Will your business be providing additional economic development opportunities created by the contract award? (e.g., hiring, or employing residents of the City of Austin or increasing tax revenue?)	Yes	No

SUBCONTRACTOR(S):

Name of Local Firm	ADS, LLC	
Physical Address	10630 Rockley, Houston, TX 77099	
Is your headquarters located in the Corporate City Limits? (circle one)	Yes	No
or		
Has your branch office been located in the Corporate City Limits for the last 5 years	Yes	No

Will your business be providing additional economic development opportunities created by the contract award? (e.g., hiring, or employing residents of the City of Austin or increasing tax revenue?)	Yes	No

SUBCONTRACTOR(S):

Name of Local Firm		
Physical Address		
Is your headquarters located in the Corporate City Limits? (circle one)	Yes	No
or		
Has your branch office been located in the Corporate City Limits for the last 5 years	Yes	No
Will your business be providing additional economic development opportunities created by the contract award? (e.g., hiring, or employing residents of the City of Austin or increasing tax revenue?)	Yes	No

Section 0815: Living Wages Contractor Certification

Company Name RJN Group, Inc.

Pursuant to the Living Wages provision (reference Section 0400, Supplemental Purchase Provisions) the Contractor is required to pay to all employees directly assigned to this City contract a minimum Living Wage equal to or greater than \$13.03 per hour.

The below listed employees of the Contractor who are directly assigned to this contract are compensated at wage rates equal to or greater than \$13.03 per hour.

Employee Name	Employee Job Title
P. Jeffrey Plymale Daniel H. Jackson, PE Jeffrey G. Merritt	Project Manager QA/QC Leader Field Operations and Safety Manager
Elizabeth Y. Aguin, PE Jonathan Kerr Kenneth W. Garrett	Data Manager Equipment Manager Data Communications
John D. Becker Michael A. Bray Trevor Emmerling	Field Supervisor Field Supervisor Field Technician
Richard Brodner Chevese Pippins Rajendra Tamrakar, PE	Field Technician Field Technician Senior Data Analyst
Margaret Fryer Estela Alvarez	Data Analyst Data Analyst

USE ADDITIONAL PAGES AS NECESSARY

- (1) All future employees assigned to this Contract will be paid a minimum Living Wage equal to or greater than \$13.03 per hour.
- (2) Our firm will not retaliate against any employee claiming non-compliance with the Living Wage provision.

A Contractor who violates this Living Wage provision shall pay each affected employee the amount of the deficiency for each day the violation continues. Willful or repeated violations of the provision or fraudulent statements made on this certification may result in termination of this Contract for Cause and subject the firm to possible suspension or debarment, or result in legal action.

Section 0835: Non-Resident Bidder Provisions

Company Name RJN Group, Inc.

- A. Bidder must answer the following questions in accordance with Vernon's Texas Statutes and Codes Annotated Government Code 2252.002, as amended:

Is the Bidder that is making and submitting this Bid a "Resident Bidder" or a "non-resident Bidder"?

Answer: Non-resident Bidder

- (1) Texas Resident Bidder- A Bidder whose principle place of business is in Texas and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in Texas.
(2) Nonresident Bidder- A Bidder who is not a Texas Resident Bidder.

- B. If the Bidder is a "Nonresident Bidder" does the state, in which the Nonresident Bidder's principal place of business is located, have a law requiring a Nonresident Bidder of that state to bid a certain amount or percentage under the Bid of a Resident Bidder of that state in order for the nonresident Bidder of that state to be awarded a Contract on such bid in said state?

Answer: No Which State: Illinois

- C. If the answer to Question B is "yes", then what amount or percentage must a Texas Resident Bidder bid under the bid price of a Resident Bidder of that state in order to be awarded a Contract on such bid in said state?

Answer: _____

Section 0900: Minority- and Women-Owned Business Enterprise (MBE/WBE) Procurement Program No Goals Form

SOLICITATION NUMBER: EAD0128

PROJECT NAME: Wastewater Flow Monitoring Services

The City of Austin has determined that no goals are appropriate for this project. Even though goals were not assigned for this solicitation, the Bidder/Proposer is required to comply with the City's MBE/WBE Procurement Program, if areas of subcontracting are identified.

If any service is needed to perform the Contract and the Bidder/Proposer does not perform the service with its own workforce or if supplies or materials are required and the Bidder/Proposer does not have the supplies or materials in its inventory, the Bidder/Proposer shall contact the Small and Minority Business Resources Department (SMBR) at (512) 974-7600 to obtain a list of MBE and WBE firms available to perform the service or provide the supplies or materials. The Bidder/Proposer must also make a Good Faith Effort to use available MBE and WBE firms. Good Faith Efforts include but are not limited to contacting the listed MBE and WBE firms to solicit their interest in performing on the Contract, using MBE and WBE firms that have shown an interest, meet qualifications, and are competitive in the market; and documenting the results of the contacts.

Will subcontractors or sub-consultants or suppliers be used to perform portions of this Contract?

No _____ If no, please sign the No Goals Form and submit it with your Bid/Proposal in a sealed envelope

_____ If yes, please contact SMBR to obtain further instructions and an availability list and perform Good Faith Efforts. Complete and submit the No Goals Form and the No Goals Utilization Plan with your
Yes ☒ _____ Bid/Proposal in a sealed envelope.

After Contract award, if your firm subcontracts any portion of the Contract, it is a requirement to complete Good Faith Efforts and the No Goals Utilization Plan, listing any subcontractor, sub-consultant, or supplier. Return the completed Plan to the Project Manager or the Contract Manager.

I understand that even though goals were not assigned, I must comply with the City's MBE/WBE Procurement Program if subcontracting areas are identified. I agree that this No Goals Form and No Goals Utilization Plan shall become a part of my Contract with the City of Austin.

RJN Group, Inc.

Company Name

Alan J. Hollenbeck, PE, President/CEO

Name and Title of Authorized Representative (Print or Type)



7/14/2016

Signature

Date

Minority- and Women-Owned Business Enterprise (MBE/WBE) Procurement Program No Goals Utilization Plan
(Please duplicate as needed)

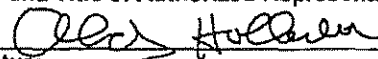
SOLICITATION NUMBER:	EAD0128
PROJECT NAME:	Wastewater Flow Monitoring Services

PRIME CONTRACTOR / CONSULTANT COMPANY INFORMATION

Name of Contractor/Consultant	RJN Group, Inc.		
Address	111 West Anderson Lane, Suite D203A		
City, State Zip	Austin, Texas 78752		
Phone Number	(512) 451-8204	Fax Number	(972) 437-2707
Name of Contact Person	P. Jeffrey Plymale		
Is Company City certified?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> MBE/WBE Joint Venture <input type="checkbox"/>		

I certify that the information included in this No Goals Utilization Plan is true and complete to the best of my knowledge and belief. I further understand and agree that the information in this document shall become part of my Contract with the City of Austin.

Alan J. Hollenbeck, PE, President and CEO
Name and Title of Authorized Representative (Print or Type)


Signature

7/14/2016
Date


Provide a list of all proposed subcontractors / sub-consultants / suppliers that will be used in the performance of this Contract. Attach Good Faith Effort documentation if non MBE/WBE firms will be used.

Sub-Contractor / Sub-Consultant	ADS, LLC		
City of Austin Certified	MBE <input type="checkbox"/> WBE <input type="checkbox"/> Ethics / Gender Code: <input checked="" type="checkbox"/> Non-Certified		
Vendor ID Code	VC0000102812		
Contact Person	Chuck Franklin	Phone Number	(281) 933-0951
Amount of Subcontract	\$539,000		
List commodity codes & description of services	96169, provide flow monitoring equipment and equipment installation/servicing		

Sub-Contractor / Sub-Consultant			
City of Austin Certified	MBE <input type="checkbox"/> WBE <input type="checkbox"/> Ethics / Gender Code: <input type="checkbox"/> Non-Certified		
Vendor ID Code			
Contact Person		Phone Number	
Amount of Subcontract	\$		
List commodity codes & description of services			

FOR SMALL AND MINORITY BUSINESS RESOURCES DEPARTMENT USE ONLY:

Having reviewed this plan, I acknowledge that the proposer (HAS) or (HAS NOT) complied with City Code Chapter 2-9A/B/C/D, as amended.

Reviewing Counselor 

Date 7/21/16

Director/Deputy Director 

Date 7-21-16

NO GOALS UTILIZATION AND GOOD FAITH EFFORT DOCUMENTATION

The RJN NO GOALS UTILIZATION PLAN and the GOOD FAITH EFFORTS DOCUMENTATION are provided in a separate sealed envelope attached to this submittal as requested per the Section 0900 NO GOALS FORM.

GOOD FAITH EFFORTS DOCUMENTATION



RJN Group, Inc. strives to locate and coordinate with minority- and women-owned business enterprises (MBE/WBE) if possible and appropriate. RJN made a good faith effort to do so for this project. As evidenced by the email correspondence/ documentation shown below and on the following pages, we were unable to find a suitable subcontractor who could meet the needs of this project. As a result, we chose a non-MBE/WBE subcontractor, ADS, LLC, with greater and more relevant specialized experience, offering an impressive value-add for the City of Austin.

As requested, Good Faith Efforts Documentation is provided below and on the subsequent pages that follow.

From: Rabaey, Elizabeth [mailto:elizabeth.rabaey@cook-joyce.com]
Sent: Tuesday, July 12, 2016 10:35 AM
To: Stephen Jeffus <sjeffus@rjnmail.com>
Subject: RE: Austin Flow Monitoring Services RFP

Stephen:

Thank you for the opportunity to provide a proposal for the Austin Flow Monitoring Services RFP. Based on the scope of services, we are going to have to say no thank you since we are environmental engineering firm that specializes in permitting, corrective action and compliance issues for our clients. Please keep us in mind for future opportunities.

Elizabeth Rabaey, Marketing Coordinator
Cook-Joyce, Inc.
812 West 11th Street, Suite 205
Austin, TX 78701
512-370-2494 - direct
512-699-7931 - cell
<http://www.cook-joyce.com>

***Providing quality environmental engineering and consulting services since 1983.
State of Texas HUB and City of Austin WBE***

From: Steve Stecher [mailto:sstecher@crespoinc.com]
Sent: Tuesday, July 12, 2016 1:55 PM
To: Stephen Jeffus <sjeffus@rjnmail.com>
Subject: RE: Austin Flow Monitoring Services RFP

Stephen: No, we cannot provide the services listed below.
Thanks
Steve S.

L. Stephen Stecher, P.E., President



Reg. # F-1758
4131 Spicewood Springs Rd., Ste. B-2
Austin, Texas 78759-8658
Phone: 512-343-6404 Ext. 101
Cell: 512-413-9775

From: Herbert Johnson [mailto:HJohnson@hvj.com]
Sent: Friday, July 15, 2016 8:26 AM
To: Stephen Jeffus <sjeffus@rjnmail.com>
Subject: RE: Austin Flow Monitoring Services RFP inquiry

Stephen,
Thank you for the interest. However, the requested services are outside of our specialty. Our primary focus is geotechnical and construction materials testing services.

Herbert V. Johnson, PE
President



281.933.8812
hjohnson@hvj.com
HVJ Associates, Inc. –
Registration No. F-000646

Celebrating **30+ Years** since 1985; Recipient of the **PSMJ Circle of Excellence** Award (2014 & 2015), the **Premier Award for Client Satisfaction** (2014), and **Houston's 101 Best and Brightest Places to Work** Award (2015).

TAB 2

AUTHORIZED NEGOTIATOR

AUTHORIZED CONTACT INFORMATION

The proposed team Project Director, Jeff Plymale, and Project Manager, Daniel Jackson, PE, are each a Vice President of the firm. They are both authorized to negotiate Contract terms and render binding decisions on Contract matters. Contact information is as follows:

P. Jeffrey Plymale

Executive Vice President/Chief Operating Officer

12160 Abrams Road, Suite 400

Dallas, Texas 75243

Office Phone: (972) 437-4300

Cell Phone: (214) 437-1444

jpymale@rjnmail.com

Daniel H. Jackson, PE

Vice President

12160 Abrams Road, Suite 400

Dallas, Texas 75243

Office Phone: (972) 437-4300

Cell Phone: (214) 529-6608

djackson@rjnmail.com

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TAB 3
EXCEPTIONS



**CITY OF AUSTIN
PURCHASING OFFICE
EXCEPTIONS**

Solicitation Number: RFP EAD0128

The City will presume that the Offeror is in agreement with all sections of the solicitation unless the Offeror takes specific exception as indicated below. Complete the exception information indicating each exception taken, provide alternative language, and justify the alternative language. The City, at its sole discretion, may negotiate exceptions that do not result in material deviations from the sections contained in the solicitation documents. Material deviations as determined by the City may result in the City deeming the Offer non-responsive. The Offeror that is awarded the contract shall be required to sign the contract with the provisions accepted or negotiated.

RJN Group, Inc. has no exceptions.

Place this attachment in Tab 3 of your offer. Copies of this form may be utilized if additional pages are needed.

Indicate:

- ☐ **0300 Standard Purchase Terms & Conditions**
- ☐ **0400 Supplemental Purchase Provisions**
- ☐ **0500 Scope of Work**

Page Number

Section Number

Section Description

Alternative Language:

Justification:

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TAB 4

PROPOSAL ACCEPTANCE PERIOD

ACCEPTANCE PERIOD

The RJN proposal is valid for a period of 180 calendar days subsequent to July 19th, 2016, the RFP closing date.

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TAB 5

EXECUTIVE SUMMARY

We are excited about the opportunity to continue to work with the City of Austin on this long-term flow monitoring program. The RJN team offers:

PROVEN TRACK RECORD OF PERFORMANCE

The City of Austin will benefit from the RJN team's experience, knowledge, and industry expertise. The term "value" may differ from client-to-client, but project success does not. This is evidenced by the RJN team's performance on the current Crosstown Flow Monitoring Program with an average overall system uptime of 97.99% as well as other recent successful flow metering projects including recent programs:

City of Baltimore - Multiple Contracts	164 meter sites
Baltimore County - Multiple Contracts	135 meter sites
ALCOSAN	145 meter sites
WSSC	210 meter sites
DC Water	161 meter sites

As a team, we stand for delivery and performance with absolute reliability and accountability:

- **Best Team**—We will staff the project with the best people from each organization
- **Technology Leaders**—RJN and ADS lead the industry in the development of new technologies, setting the standards for meter calibration and confirmation, and developing and improving the delivery of web-based data management and reporting tools

- **Data Validation**—Dedicated experts will review and validate data as it is collected to ensure data accuracy and meter uptime, providing confidence that results will be accurate
- **Project Delivery Mindset**—The RJN team will conduct flow monitoring with the end in mind—DATA QUALITY. We understand that the collected data must be accurate as it will drive operations and maintenance decisions, capital improvement planning, and utility billing applications.

PROJECT TEAM CREDENTIALS THAT EXCEED THE CITY'S REQUIREMENTS

The RJN team brings unmatched experience ensuring world-class performance and the highest quality data. We carefully selected our partner, **ADS, LLC**, based on their portfolio of metering equipment, services, and experience. The spirit of this aligns first and foremost with serving the City of Austin's interests and goals for this important program.

The City's goal is to acquire accurate flow data that will facilitate ongoing inflow and infiltration (I/I) investigations, sewer system hydraulic model calibrations, and overflow monitoring. Flow data will be collected through the City's network of permanent meters and also through selective temporary metering programs. The City intends to calibrate the hydraulic model, evaluate flows, and analyze the performance of the wastewater collection system. In addition to installing and maintaining permanent flow monitoring equipment and collecting and verifying collected data, the system

The term "value" may differ from client-to-client, but project success does not. This is evidenced by the RJN team's performance on the current Crosstown Flow Monitoring Program with an average overall system uptime of 97.99%.

will provide the data that will serve to identify potential sanitary sewer overflows.

The RJN team offers unique benefits to ensure that all City requirements are met:

- **Unmatched experience with large scale projects (100+) meters**—The RJN team members have a successful history with large projects in complex regional systems. RJN and ADS team member experience is demonstrated and documented in Tab 7 and Tab 8.
- **State-of-the-art equipment inventories maintained by specialists**—The RJN team has more than 800 ADS Triton+ and the new ECHO level monitors in inventory with access to parts inventories for servicing. Malfunctioning equipment is only maintained by certified equipment specialists—ADS as the equipment provider and RJN as the certified metering specialist. Equipment specifications and communication protocols are presented in Tab 9.
- **Proven processes and QA/QC Programs drive the flow monitoring approach**—From thorough investigative site inspections at the front end through standardized, daily network monitoring processes, the RJN team conducts QA/QC at each step of the project. Meter performance and accuracy is monitored daily and routine in-situ equipment verifications ensure that delivered data will be accurate and will truly represent the performance of the collection system. Our detailed approach is presented in Tab 10 with quality control measures discussed in Tab 11.



- **Proven track record with delivering the highest quality data in an uninterrupted manner to its clients**—The average uptime for all RJN flow monitoring programs is 98.46%. In 2014, this measurement was derived from 46,233 meter-days in 27 different cities; in 2015, the metering was performed at 817 sites in 33 municipal collection systems.
- **Local and responsive team members that are recognized experts in the industry**—Key team leaders and technical advisors have leaders in the flow monitoring industry and will be involved for the duration of the project. All of the RJN project team members have performed the same roles for the ongoing City Crosstown Flow Monitoring program, which achieved an average overall uptime of 97.99%.
- **Safety First**—Safety is the mantra of both RJN and ADS. Our safety programs have been developed to ensure that our staff go home safely each night and that our work sites are safe for community members as well. Our safety program and documented safety manual is unmatched in the industry.

THE RJN TEAM OFFERS A VALUE PROPOSITION

The RJN team will deliver a project that will allow the City to make operational and financial decisions knowing that the flow data providing a baseline represents system performance. **THE RJN TEAM CAN POSITIVELY GUARANTEE THE QUALITY AND RELIABILITY OF THE DATA.** We hope and trust that our proposal conveys these principles in a credible and consistent way and we would be honored to present our proposal to the City of Austin.

TAB 6

BUSINESS ORGANIZATION

TAB 6

FIRM NAME AND ADDRESS

RJN Group, Inc. (RJN)

111 West Anderson Lane, Suite D203A
 Austin, Texas 78752

RJN is a professional consulting engineering firm headquartered Wheaton, Illinois. The project team field staff allocated for this project will be located in the Austin office when conducting equipment installation, maintenance including in-situ calibrations, and rotations. RJN data verification and analysis services are the responsibility of the centralized RJN Data Group, located in Dallas, Texas.

RJN Dallas Office

12160 Abrams Road, Suite 400
 Dallas, Texas 75243

AUTHORIZATIONS AND CONDITIONS

TEXAS AUTHORIZATIONS

State of Texas Secretary of State—7205006, in Good Standing
 Texas Board of Professional Engineers—F-3260

BANKRUPTCY PETITIONS

RJN has never filed a voluntary or involuntary bankruptcy petition.

CLAIMS/LITIGATION HISTORY

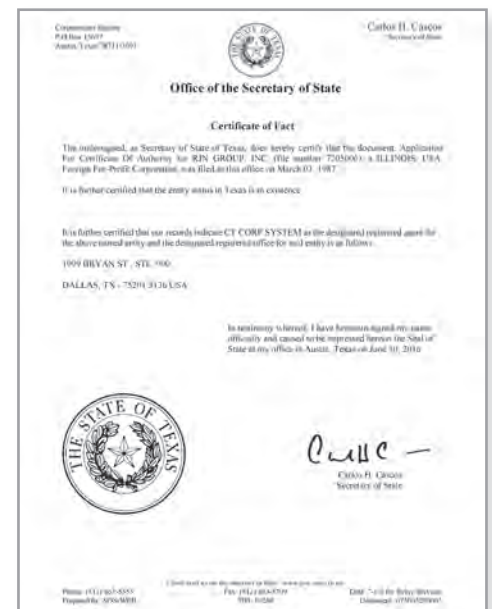
RJN has no history of litigation—claims, arbitrations, administrative hearings, or lawsuits—in the past 5 years.

CRIMINAL PROCEEDINGS

RJN, RJN principals, and RJN officers have never been involved in criminal proceedings or hearings.

CONTRACT HISTORY

RJN has never failed to complete work associated with an awarded contract and has never been terminated from a contract.



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TAB 7

PRIOR EXPERIENCE & REFERENCES

TAB 7

FIRM CREDENTIALS

RJN Group, Inc. engineers and field technicians have installed, serviced, and analyzed flow meter data for 35 years in 350 systems across the country. With a portfolio of more than 1,000 metering programs, RJN has emerged as a leader in a very select group of service providers. We understand that flow monitoring results must be accurate and therefore representative of system performance. Ensuring data accuracy requires:

- **The “Right” Technologies**—a thorough understanding of theories of operation for the monitoring equipment as well as operational strengths and limitations
- **Routine Calibrations**—sensor confirmations, hydraulic calibrations and system balancing
- **Ongoing Hydraulic Analysis**—engineering analysis of the flow data using sound hydraulic principals

RJN engineers and field staff know that each flow monitoring program has unique challenges related to system configurations, local topography, regulations, and requirements, site access conditions, and safety constraints. We have successfully conducted programs involving installation, maintenance, data collection/verification, and data management in large- and small-diameter sewers, deep sewers, downtown areas, business districts, congested traffic zones, and high-crime areas. As a flow metering specialist, our expertise is based on real experience.



- **RJN’s inventory** of 400 flow meters from various manufacturers (ISCO, ADS, Hach, FloWav, and Telog) is maintained and calibrated by experienced RJN meter technicians

- RJN consistently **achieves greater than 98% meter uptime**. In 2014, RJN averaged 98.36% uptime for 146,233 meter-days in 27 different cities; in 2015, the average meter uptime was 98.62% for 817 sites in 33 municipal collection systems.
- RJN monitored flows in hydraulically challenging sites—**pipes up to 243 inches in diameter, deep sites to 90 feet**, and pump stations
- Routine **RJN System Status Monitoring protocols** actively monitor meter and rain gauge performance to ensure uptime and drive preventive and corrective equipment maintenance
- **Proven tools**—internally developed RPM, Telog Enterprise, and GATAR data collectors—facilitate near real-time corrective equipment maintenance, and data collection, processing, and verification with options for web-based access for our clients

LEVERAGING THE POWER OF TECHNOLOGY

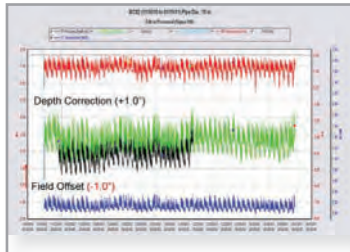
RJN uses a portfolio of sophisticated tools to facilitate effective flow monitoring programs. These tools—Telog Enterprise Client (TEC), RJN Project Manager (RPM), and the GATAR data collectors—efficiently handle data collection and review, data analysis, equipment management and maintenance, field crew scheduling, and online reporting. They are the key components that drive standardized RJN System Status Monitoring (SSM) protocols and maintenance work flows. They also provide robust tools to support sophisticated hydraulic calculations and analyses to balance flows and assess I/I impacts.



RJN is the largest flow service provider using TEC as its main data platform. Since 2004, RJN has influenced the evolution of the TEC software from a simple data management platform to a comprehensive data delivery tool. A significant number of TEC features and functions have been funded and tested by RJN through our collaborative relationship on a number of large-scale programs.

DATA ANALYSIS = ACCURATE RESULTS

The RJN Data Group, a centralized group of data professionals, focuses solely on the collection, management, validation, quality and analysis of flow meter data to ensure delivery of accurate and representative collection system hydraulic information. The group is composed of experienced and trained analysts including degreed engineers (M.S./B.S.) Professional Engineers (P.E.), engineering interns, scientists, and programmers that ensure the accurate and expeditious delivery of flow data services for every flow monitoring program conducted by the firm. They use various analytical tools such as hydrographs, scattergraphs, and flow balancing techniques to validate the accuracy and precision of the equipment.



Each RJN data analyst is required to complete an apprenticeship and training program that covers database setup, equipment configuration, various internal and external software tools, theories of operation for various meter types, troubleshooting, telemetry, data processing, editing, quality control, and hydraulic analysis. The apprenticeship and training program takes a minimum of 18 months to train a substantially independent data analyst.



TRAINING FOR SAFE FIELD OPERATIONS

RJN field technicians and metering experts have successfully installed and maintained meter networks using virtually every gravity and pressure flow metering technology available today. Our technicians complete a rigorous internal training regime encompassing specialized field techniques, equipment usage, safety certifications, OSHA requirements, and traffic control.



RELEVANT PROJECT DESCRIPTIONS

The following projects were completed by project team members within the last 7 years and involved 100 meters. Equipment uptime exceeded 98% on each project, schedules were met, and work was completed within budget.

Long-Term Flow Monitoring

Agency	Washington Suburban Sanitary Commission (WSSC), Maryland
Number of Meters	211 meters, 18 rain gauges
Contact	Glen Diaz, (301) 206-4378, Glen.Diaz@wsscwater.com
Year and Length	Started 2013, 5 annual contracts (renewable based on services provided)
Budget/Award \$	\$6,682,089 (to date)

Scope and Magnitude	<p>Long-term flow metering services (five-year program) for the Commission's permanent telemetric flow monitoring network—197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges. Thirty-eight (38) of the 210 total meters are used for monthly customer billing. Services for continuing maintenance for the network includes management, analysis, and reporting using a web-accessible data management system that allows and maximizes real-time data accessibility for the Commission.</p> <ul style="list-style-type: none"> ■ Site investigations and reviews ■ Equipment installation, maintenance, and removal ■ Equipment calibration ■ In-situ calibrations ■ Telog EDF data retrieval and data transfer ■ Flow data analysis (flow balancing, data editing, data corrections) ■ QA/QC
Completion Status	Ongoing (2018)
RJN Team Members	Jeff Plymale, Jeff Merritt, Elizabeth Aguin, Rajendra Tamrakar, Margaret Fryer, Karen Rico, Ken Garrett, Jon Kerr

Short- and Long-Term Flow Monitoring Program

Agency	District of Columbia Water and Sewer Authority (DC Water)
Number of Meters	174 meters, 6 rain gauges
Contact	Essey Woldemariam, (202) 264-3831, essey.woldemariam@dcwater.com
Year and Length	Started 2015 with a contract extension in 2016
Budget/Award \$	\$5,267,285
Scope and Magnitude	<p>Flow monitoring services including equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10 to 264 inches. Flow data collected during the 12-month metering period is being used to calibrate the hydraulic model, perform I/I analyses, determine baseline level of services/control, and assess the impact of new development and other changes to the collection system. Flow analysis results are supporting DC Water capital planning programs.</p> <ul style="list-style-type: none"> ■ Site investigations and reviews ■ Equipment installation, maintenance, and removal ■ Equipment calibration ■ In-situ calibrations ■ Telog EDF data retrieval and data transfer ■ Flow data analysis (flow balancing, data editing, data corrections) ■ QA/QC
Completion Status	Ongoing (2017)
RJN Team Members	Jeff Plymale, Jeff Merritt, Elizabeth Aguin, Rajendra Tamrakar, Margaret Fryer, Ken Garrett, Michael Bray, JD Becker, Trevor Emmerling

South Area Flow Monitoring

Agency	Baltimore County, Maryland
Number of Meters	130 meters, 25 groundwater gauges
Contact	David Bayer, PE, (410) 887-3782, dbayer@baltimorecountymd.gov
Year and Length	Awarded 8/2011; 2-year contract
Budget/Award \$	\$5,527,634
Scope and Magnitude	<p>Flow monitoring program (130 meters/25 groundwater gauges/12 months) conducted in eight non-priority sewersheds to support hydraulic modeling, capacity assessment and Long-Term Control Plan development, I/I analysis, and SRRR Plan development. Each meter basin covered between 20,000 and 30,000 LF of pipe. Data was collected using wireless telemetry and I/I analysis was conducted monthly.</p> <ul style="list-style-type: none"> ■ Site investigations and reviews ■ Equipment installation, maintenance, and removal ■ Equipment calibration ■ In-situ calibrations ■ Telog EDF data retrieval and data transfer ■ Flow data analysis (flow balancing, data editing, data corrections) ■ QA/QC
Completion Status	Completed on-time and within budget
RJN Team Members	Jeff Plymale, Jeff Merritt, Elizabeth Aguin, Margaret Fryer, Karen Rico, Rajendra Tamrakar, Michael Bray, Ken Garrett

Northern Region Flow Monitoring

Agency	Allegheny County Sanitary Authority (ALCOSAN), Pennsylvania
Number of Meters	146 meters
Contact	Timothy Prevost, PE, (412) 734-8731, timothy.prevost@alcosan.org
Year and Length	2007 to 2010 (2-year contract, 18-month metering period.)
Budget/Award \$	\$3,459,570
Scope and Magnitude	<p>Regional collection system flow monitoring program to quantify dry- and wet-weather flows through combined and separate sanitary sewers and to characterize flows from tributary sewershed areas. Monitoring activities were conducted using a network of 146 meters to measure wastewater flow and combined sewer overflow/sanitary sewer overflow discharges as required by the Authority Consent Decree.</p> <ul style="list-style-type: none"> ■ Site investigations and reviews ■ Equipment installation, maintenance, and removal ■ Equipment calibration ■ In-situ calibrations ■ Telog EDF data retrieval and data transfer ■ Flow data analysis (flow balancing, data editing, data corrections) ■ QA/QC
Completion Status	Completed on-time and within budget
RJN Team Members	Jeff Plymale, Jeff Merritt, Elizabeth Aguin

ADS, LLC RELEVANT EXPERIENCE

Temporary Flow Monitoring

Agency	City of Houston, Texas
Number of Meters	285 meters, 20 rain gauges
Contact	Fazle Rabbi, PE, (832) 395-2687, Fazle.Rabbi@houstontx.gov
Year and Length	2012 to 2015
Budget/Award \$	\$3,992,000
Scope and Magnitude	<ul style="list-style-type: none"> ■ Long-Term Flow Monitors ■ Temporary Flow Monitors ■ SSES Recommendations ■ Manhole Inspections ■ Billing of Satellite Communities ■ Targeting O&M Efforts
Completion Status	Ongoing—on-time and within budget
ADS Team Members	Pat Stevens, Chuck Franklin, Dennis McPhearson, Joe Frietas, Michael Lopez

Long-Term Flow Monitoring

Agency	City of Tulsa, Oklahoma
Number of Meters	105 meters
Contact	Robert Shelton, PE, (918) 596-9572) 395-2687, rshelton@cityoftulsa.org
Year and Length	1993 to present
Budget/Award \$	\$2,296,961
Scope and Magnitude	<ul style="list-style-type: none"> ■ 105 Long-Term Flow Monitors ■ 19 Billing Meters
Completion Status	Ongoing—currently under budget
ADS Team Members	Pat Stevens, Chuck Franklin, Michael Lopez

Flow Monitoring Program

Agency	Fulton County, Department of Public Works, Georgia
Number of Meters	229 long-term meters, 32 long-range level only meters, 50 rain gauges
Contact	Anthony Kelly, (404) 612-5512, Anthony.Kelly@fultoncountyga.gov
Year and Length	1993 to Present
Budget/Award \$	\$8,900,000 (5 years)
Scope and Magnitude	<ul style="list-style-type: none"> ■ Long-Term Flow Monitors ■ Temporary Flow Monitors ■ SSES Recommendations ■ Manhole Inspections ■ Billing of Satellite Communities ■ Targeting O&M Efforts
Completion Status	Ongoing—on-time and within budget
ADS Team Members	Pat Stevens

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TAB 8

PERSONNEL QUALIFICATIONS AND RESOURCES

PRIMARY WORK ASSIGNMENTS

TEAM ORGANIZATION CHART



The Project Director, Jeff Plymale, and the Project Manager, Daniel Jackson, are committed to being available for the duration of the project to manage and oversee all aspects and ensure timely delivery of data and reporting. They will also be the primary points of contact for City of Austin staff. Jeff and Daniel are currently filling the same roles for the City's ongoing Crosstown Flow Monitoring Program.

PROJECT DIRECTOR

Jeff Plymale, the Project Director, will be responsible for project oversight and ensuring that all work is conducted in accordance with the project requirements. As a Principal and Chief Operating Officer of the firm, he will:

- Ensure equipment and staff resources are available to meet the needs of the project
- Negotiate contract scope and pricing
- Administer legal and contractual documents
- Provide technical guidance throughout the project
- Monitor deadlines and budgets

PROJECT MANAGER

Daniel Jackson, PE, the Project Manager, is a Texas-licensed PE with more than 14 years of flow monitoring experience. As a firm Principal, he will be accountable for timely, accurate, and complete delivery of all project contractual obligations and will:

- Manage day-to-day project work, including local resources, staff, and equipment to adhere to project schedules
- Be the primary City contact
- Account for the quality of work, adhere to the project schedule, and conduct the project within budget
- Assign and coordinate personnel and resources to facilitate schedules and budgets
- Deliver routine project status and financial reports
- Ensure the quality of all data deliverables

FIELD OPERATIONS MANAGER

Jeff Merritt, the Field Operations Manager/Safety Manager, brings 24 years of experience with flow monitoring field services. He is currently the internal RJN Safety Manager, and has experience installing flow meters in challenging environments including pipes as large as 258 inches in diameter, odd-shaped pipes, and pipe depths up to 100 feet deep. He will be responsible for:

- Overseeing all equipment installations
- Coordinating and managing equipment maintenance
- Managing equipment resources
- Ensuring that safety standards, regulations, and documented policies are implemented and followed

DATA MANAGER

Elizabeth Aguin, PE, the Data Manager, will be responsible for overseeing and conducting quality control of all data editing tasks required to ensure data quality. She is a licensed Texas PE and has more than seven years of experience with flow data verifications including flow balancing and complex analysis of scattergraphs and hydrographs. She manages the centralized RJN Data Group and will ultimately be responsible for the quality of all final data deliverables.

KEY TEAM MEMBER CREDENTIALS

Each RJN team member has worked in similar capacities on the Crosstown Flow Monitoring Program, providing a sound knowledge base with City standards, systems, and deliverable requirements, ensuring efficient project start-up and resulting in representative, quality data.

Telog Enterprise has been the RJN flow monitoring and data management tool since 2004. **All RJN team members have expertise with Telog EDF data collection, data monitoring, data transfer, and data editing tools as well as flow balancing techniques.**

Résumés detailing the credentials and experience of each key team member are presented beginning on Page 39. The summary table on the following page highlights each team member's credentials as they relate to consultant minimum requirements outlined in the EAD0128 RFP. The RJN team capabilities will be enhanced by our teaming partner ADS Environmental Services (ADS).

ADS ENVIRONMENTAL SERVICES

ADS Environmental Services is a brand of ADS LLC and a Business Unit of IDEX



Corporation. They focus on innovating new equipment, software, and services to serve the highly specialized wastewater flow monitoring marketplace to provide real-time flow data. Drawing upon nearly four decades of experience and thousands of flow assessment projects, they will support this program providing equipment, QA/QC oversight, and field services.

STAFF QUALIFICATIONS SUMMARY

Team Member/Title	Experience (Years)	Relevant Experience
Jeffrey Plymale <i>Project Director</i>	34	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • Washington Suburban Sanitary Commission (WSSC), MD—211 meters • Allegheny County Sanitary Authority (ALCOSAN), PA—146 meters • DC Water, DC—174 meters • Massachusetts Water Resources Authority (MWRA), MA—220 meters • Baltimore, MD—114 meters • Baltimore County, MD—130 meters
Daniel H. Jackson, PE <i>Project Manager</i>	14	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • Baltimore, MD—114 meters • Dallas Water Utilities, TX—103 meters • Little Rock Wastewater, AR—69 meters • Hot Springs, AR—65 meters
Jeffrey G. Merritt <i>Field Operations Manager</i>	24	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • WSSC, MD—211 meters • ALCOSAN, PA—146 meters • DC Water, DC—174 meters • Baltimore County, MD—130 meters • Baltimore, MD—114 meters
Elizabeth Y. Aguin, PE <i>Data QC Manager</i>	7	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • WSSC, MD—211 meters • ALCOSAN, PA—146 meters • DC Water, DC—174 meters • Baltimore County, MD—130 meters
Jonathan Kerr <i>Equipment Manager</i>	33	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • WSSC, MD—211 meters • ALCOSAN, PA—146 meters • DC Water, DC—174 meters • MWRA, MA—220 meters • Baltimore County, MD—130 meters • Baltimore, MD—114 meters
Kenneth W. Garrett <i>Data Communications Manager</i>	10	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • WSSC, MD—211 meters • ALCOSAN, PA—146 meters • DC Water, DC—174 meters • Little Rock Wastewater, AR—69 meters • Hot Springs, AR—65 meters
John D. Becker <i>Field Supervisor</i>	9	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • DC Water, DC—161 meters (10" to 264" diameter, 100' deep) • Little Rock Wastewater, AR—69 meters (8" to 60" diameter) • Hot Springs, AR—65 meters (8" to 48" diameter) • Arlington Heights, IL—30 meters (24" to 84" diameter, 9' deep) • Fort Worth, TX—46 meters (24" to 96" diameter)

Team Member/Title	Experience (Years)	Relevant Experience
Michael A. Bray <i>Field Supervisor</i>	9	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, TX DC Water, DC—161 meters (10" to 264" diameter) Baltimore, MD—114 meters (8" to 120" diameter) Little Rock Wastewater, AR—69 meters (8" to 60" diameter) Hot Springs, AR—65 meters (8" to 48" diameter)
Rajendra Tamrakar, PE <i>Data Analyst</i>	14	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, TX WSSC, MD—211 meters (5 years) DC Water, DC—161 meters (12 months) Baltimore County, MD—130 meters (12 months)
Margaret G. Fryer <i>Data Analyst</i>	3	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, TX WSSC, MD—211 meters DC Water, DC—161 meters Baltimore County, MD—130 meters
Karen A. Rico, EI <i>Data Analyst</i>	4	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, TX WSSC, MD—211 meters Baltimore County, MD—130 meters Little Rock Wastewater, AR—69 meters Hot Springs, AR—65 meters
Richard Brodner <i>Field Technician</i>	6	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, TX Little Rock Wastewater, AR—69 meters (8" to 60" diameter) Hot Springs, AR—65 meters (8" to 48" diameter) Russellville, AR—28 meters (8" to 48" diameter)
Trevor Emmerling <i>Field Technician</i>	3	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, TX DC Water, DC—161 meters (10" to 264" diameter) Hot Springs, AR—65 meters (8" to 48" diameter) Trinity River Authority, TX—Multiple projects (up to 102" diameter) Memphis, TN—Multiple projects (up to 96" diameter)
Cheveze Pippins <i>Field Technician</i>	1	<ul style="list-style-type: none"> Crosstown Flow Monitoring, Austin, Texas Trinity River Authority, TX—Multiple projects (up to 102" diameter)
Pat Stevens ADS, LLC <i>QA/QC</i>	38	<ul style="list-style-type: none"> King County, WA—806 meters, 72 rain gauges Fulton County, GA—261 meters Indianapolis, IN, I/I Reduction Program
Chuck Franklin ADS, LLC <i>Field Supervisor</i>	28	<ul style="list-style-type: none"> Houston, TX—285 meters San Antonio Water System, TX—30 meters Frisco, TX—Flow monitoring to support I/I Studies
Dennis McPhearson ADS, LLC <i>Field Technician</i>	25	<ul style="list-style-type: none"> Nashville, TN—100 CSO/long-term meters, 90 temporary meters New York, NY—15 meters (60" to 120" diameter, 40' to 110' deep) Birmingham, AL—165 meters
Joe Freitas ADS, LLC <i>Field Technician</i>	18	<ul style="list-style-type: none"> New Orleans, LA—Temporary flow monitoring San Antonio Water System, TX—Multiple flow monitoring programs Crowley, LA—Temporary SCADA metering
Michael Lopez ADS, LLC <i>Field Technician</i>	2	<ul style="list-style-type: none"> San Antonio Water System, TX—Flow monitoring and field services Houston, TX—285 meters Tulsa, OK—95 meters

P. Jeffrey Plymale

Project Director/Chief Operating Officer



Years of Experience: 34

Education

B.S.—Civil Engineering, (University of Illinois at Urbana-Champaign, 1981)

Registrations

E.I.T.—Illinois #061-016813

Certifications/Training

OSHA 10-Hour Safety Certification,
30-003173559

Software Expertise

Telog Enterprise

Committees/Technical Organizations

Water Environment Federation

Water Environment Association of Texas

Arkansas Water Environment Association

Louisiana Water Environment Association

Representative Technical Papers

“Using Gauge Adjusted Rainfall Information from Baltimore County for Real-time Forecast of Hurricane Rainfall”, WEF Stormwater Symposium, 2012

“Large Diameter Flow Monitoring”, Texas Municipal Utilities Association (TMUA), 2008

“Asset Management: Planning and Projecting Risk”, Arkansas Water and Water Environment Association, 2007

“Installing and Maintaining a Long-term Flow Monitoring System to Effectively Maintain a Collection System”, Water Environment Federation, 2006

“Benefits of Long-term Flow Monitoring”, Water Environment Federation CMOM Conference, 2006

Mr. Plymale has comprehensive experience with wastewater collection systems, including design, project management, operations management, and construction management for commercial and municipal infrastructure projects. Through experience with programs across the U.S. and abroad, he has experience in all aspects of sewer system evaluation and flow monitoring projects as a hands-on Project Manager and Operations Manager. He currently manages RJN Flow Monitoring services and has been responsible for launching new tools and technologies to facilitate highly accurate and cost-effective flow monitoring practices.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Project Director. Long-term flow monitoring program involved maintenance and data collection for the City’s permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100’ deep to 96” diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Project Director. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8” to 84”.

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Technical Advisor. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10” to 264”.

North Area Flow Monitoring, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania—Project Manager. Regional flow monitoring required under consent decree involved site selection, equipment installation and maintenance, data collection and data delivery for 146 meters in sites ranging from 8” to 102”.

South Area Flow Monitoring Program, Baltimore County, Maryland—Project Director. Flow monitoring program involving site selection/verification, installation, maintenance, data collection, and data processing for 130 flow meter sites and 25 groundwater gauges for a 12-month period. Sites ranged from 8” to 60”.

City-wide Flow Monitoring Program, Baltimore, Maryland—Project Director. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8” to 120”.

Sims Bayou Flow Monitoring, MGD, Houston, Texas—Project Manager. Temporary flow monitoring project involving 98 gravity flow monitors and 20 rain gauges for a 74-day period in sites ranging from 8” to 72”.

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Project Manager. System evaluation in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF).

Daniel H. Jackson, PE

Project Manager/Vice President



Years of Experience: 14

Education

B.S.—Civil Engineering, (Texas Tech University, 2002)

Registrations

P.E.—Texas #102137, Arkansas #13978

Certifications/Training

NASSCO PACP/MACP Certification,
U-1113-06019290

OSHA 10-Hour Safety Certification,
30-003173557

Confined Space Entry Certified

Software Expertise

Telog Enterprise

Committees/Technical Organizations

Water Environment Association of Texas
(WEAT)

Underground Construction Technology
(UCTA)

Representative Technical Papers

“Hot Springs, Resort Town - the ‘Other’
Water: Part 2”, presented at EPA Region 6
CMOM Workshop, 2014

“Under Control: The City of Hot Springs,
Ark. Uses Combination of Trenchless
Solutions to Tackle I/I Problems”,
published in Trenchless Technology
Magazine, 2014

“Manhole Inspection Techniques and
Rehabilitation Design”, APWA, 2013

“You Can Model That? Modeling a Large
Sanitary Sewer System with Thousands
of Grinder Pumps”, WEFTEC, 2012

Mr. Jackson offers 14 years of experience with collection system planning programs, sanitary sewer evaluation studies, sewer rehabilitation design, collection systems design, hydraulic capacity analysis, master planning along with construction inspection/management. He also has worked with clients to develop programs to meet regulatory mandates, assisted in consent decree negotiations with DOJ, and brings a strong knowledge base to address municipal maintenance and management programs.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Project Manager. Long-term flow monitoring program involved maintenance and data collection for the City’s permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100’ deep to 96” diameters.

City-wide Flow Monitoring Program, Baltimore, Maryland—Project Engineer. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8” to 120”.

Master Plan Flow Monitoring, MWH, Dallas Water Utilities, Texas—Senior Project Engineer. Flow monitoring services involving site verification, equipment installation and maintenance, data collection and verifications (47 permanent meters/56 temporary meters/ 60 days) in sites ranging from 6” to 96”.

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Senior Project Engineer. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8” to 60”.

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Project Manager. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/ maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8” to 48”.

Master Plan Flow Monitoring, HDR, Broken Arrow, Oklahoma—Project Manager. Flow monitoring services provided as a subconsultant involving site selection, installation, and data collection/verification (42 meters/8 rain gauges/90-days). Sites ranged from 8” to 36”.

City-Wide Flow Monitoring, Fort Smith, Arkansas—Project Manager. Flow monitoring involving site selection, equipment installation and maintenance, data collection and data analysis (45 meters/8 rain gauges) in sites ranging from 8” to 48”.

Post Rehabilitation Flow Monitoring, Beaumont, Texas—Project Manager. Flow monitoring (31 meters) involving site selection, equipment installation and maintenance, and data collection and analysis in sites ranging from 8” to 72”.

Grand Prairie TRA Interceptor Flow Monitoring, ESPY, Grand Prairie, Texas—Project Director. Installation and maintenance, and data collection and analysis for 5 meters installed in 102” interceptor transporting flows to the Trinity River Authority.



Years of Experience: 25

Certifications/Training

NASSCO PACP/MACP Certification,
U-307-4561

OSHA 10-Hour Safety Certification,
28-004827836

First Aid, CPR, and AED (Defibrillator)

Confined Space Entry

Defensive Driving for Non-Commercial
Vehicles

Temp Traffic Control Manager

Traffic Control Manager Certification (MD)

Operation and Maintenance of
Wastewater Collection Systems: 9 CEU's,
California State University, Sacramento

Wastewater Laboratory - 20 hours of
instruction, The Trinity River Authority of
Texas Operator Training Program

Wastewater Treatment Unit II - 20 hours,
TWUA North Central Texas Regional
School

Mr. Merritt has managed field investigation services in some of the most challenging sewer systems in the country. As such, his familiarity with wastewater collection systems has provided him with the knowledge and experience to manage flow monitoring and SSES projects. Mr. Merritt currently provides operation support for projects, development and training of Standard Operation Procedures. He is also the Chairman of the Corporate Safety Committee as well as the manager of the company's fleet of vehicles

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Safety Manager. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Field Manager. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8" to 84".

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Field Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10 to 264 inches.

North Area Flow Monitoring, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania—Field Manager. Regional flow monitoring required under consent decree involved site selection, equipment installation and maintenance, data collection, and data delivery for 146 meters in sites ranging from 8" to 102".

South Area Flow Monitoring Program, Baltimore County, Maryland—Field Manager. Flow monitoring program involving site selection/verification, installation, maintenance, data collection, and data processing for 130 flow meter sites and 25 groundwater gauges for a 12-month period. Sites ranged from 8" to 60".

City-wide Flow Monitoring Program, Baltimore, Maryland—Field Manager. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8" to 120".

Wastewater Master Plan (FTW08336) Flow Monitoring, Freese & Nichols, Fort Worth, Texas—Field Manager. Flow monitoring services to collect data for the master planning involving site selection and equipment, maintenance, monitoring, and data collection and verification (46 meters/20 rain gauges/90 days) in sites ranging from 24" to 96".

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Project Manager. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8" to 48".



Years of Experience: 7

Education

B.S.—Civil Engineering/Mathematics,
(Southern Methodist University, 2010)

M.S.—Civil Engineering, (Southern
Methodist University, 2011)

Registrations:

P.E.—Texas #120233

Certifications/Training

4-Hour Work Zone Traffic Control

First Aid and CPR

Confined Space Entry

Software Expertise

Telog Enterprise

ADS Profiler

ArcGIS

Representative Technical Papers

“The Influence of Record Rains on
Sanitary Sewer Condition Systems”,
WEFTEC , 2016

Ms. Aguin specializes in data analysis and data management services to support wastewater collection evaluation studies. Her specific expertise lies with verification and analysis of collected flow data, field inspection results, utility maps, WWTP and lift/pump station records, defect rehabilitation methods, and rain data.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Data Manager. Long-term flow monitoring program involved maintenance and data collection for the City’s permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100’ deep to 96” diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Data Manager. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8” to 84”.

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Data Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10” to 264”.

North Area Flow Monitoring, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania—Data Analyst. Regional flow monitoring required under consent decree involved site selection, equipment installation and maintenance, data collection, and data delivery for 146 meters in sites ranging from 8” to 102”.

South Area Flow Monitoring Program, Baltimore County, Maryland—Data Manager. Flow monitoring program involving site selection/verification, installation, maintenance, data collection, and data processing for 130 flow meter sites and 25 groundwater gauges for a 12-month period. Sites ranged from 8” to 60”.

Wastewater Master Plan (FTW08336) Flow Monitoring, Freese & Nichols, Fort Worth, Texas—Data Analyst. Flow monitoring services to collect data for the master planning involving site selection and equipment, maintenance, monitoring, and data collection and verification (46 meters/20 rain gauges/90 days) in sites ranging from 24” to 96”.

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Data Manager. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8” to 60”.

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Project Manager. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8” to 48”.



Years of Experience: 10

Certifications/Training

Confined Space Entry

4-Hour Work Zone Traffic Control

First Aid and CPR Certified

Software Expertise

ADS Profiler

Telog Enterprise

FS DATA

MS SQL

SAP Crystal Reports

Mr. Garrett specializes in data analysis and management services to support flow monitoring and collection system inspection programs. In this role, he is responsible for validating collected data and verifying data accuracy. He also conducts complex flow analysis to derive dry-weather flow levels and wet-weather impacts and anomalies. Mr. Garrett has also managed and conducted field investigations using a variety of methodologies.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—IT Analyst.

Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—IT Analyst.

Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8" to 84".

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—IT

Analyst. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification, and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

North Area Flow Monitoring, Allegheny County Sanitary Authority, Pittsburgh,

Pennsylvania—Field Technician. Regional flow monitoring required under consent decree involved site selection, equipment installation and maintenance, data collection, and data delivery for 146 meters in sites ranging from 8" to 102".

South Area Flow Monitoring Program, Baltimore County, Maryland—IT Analyst.

Flow monitoring program involving site selection/verification, installation, maintenance, data collection, and data processing for 130 flow meter sites and 25 groundwater gauges for a 12-month period. Sites ranged from 8" to 60".

City-wide Flow Monitoring Program, Baltimore, Maryland—Field Technician.

Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8" to 120".

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little

Rock Wastewater, Arkansas—Field Technician. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8" to 60".

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Field Technician.

City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8" to 48".



Years of Experience: 33

Education

Business Management, (University of Northern Colorado, 1982)

Land Survey, (Eastfield Community College, 1985)

Windows, (North Lake Community College, 1997)

General Studies, (College of the Ozarks, 1981)

Certifications/Training

OSHA 10-Hour Safety Certification, 30-003173551

4-Hour Work Zone Traffic Control

First Aid, CPR and AED (Defibrillator)

Confined Space Entry

Self Contained Breathing Apparatus Certified

Software Expertise

Telog Enterprise Training

Telog System Training (RU-33, RS-33 Programming and Troubleshooting)

Mr. Kerr has extensive experience in flow meter equipment management, maintenance, and operations. He is the manager of the central RJN Flow Meter Lab and is responsible for calibrating and maintaining the RJN inventory of 400 flow meters. This inventory includes metering equipment from a variety of manufacturers including ADS, Hach-Sigma, FloWav, Isco, and Telog. He has worked in all phases of sewer system evaluation surveys including flow monitoring, smoke testing, physical inspection, quantification, cleaning, and closed circuit television inspection.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Equipment Manager. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Equipment Manager. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8" to 84".

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Equipment Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

North Area Flow Monitoring, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania—Equipment Manager. Regional flow monitoring required under consent decree involved site selection, equipment installation and maintenance, data collection, and data delivery for 146 meters in sites ranging from 8" to 102".

South Area Flow Monitoring Program, Baltimore County, Maryland—Equipment Manager. Flow monitoring program involving site selection/verification, installation, maintenance, data collection, and data processing for 130 flow meter sites and 25 groundwater gauges for a 12-month period. Sites ranged from 8" to 60".

City-wide Flow Monitoring Program, Baltimore, Maryland—Equipment Manager. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8" to 120".

Master Plan Flow Monitoring, MWH, Dallas Water Utilities, Texas—Field Supervisor. Flow monitoring services involving site verification, equipment installation and maintenance, data collection and verifications (47 permanent meters/56 temporary meters/60 days) in sites ranging from 6" to 96".

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Equipment Manager. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8" to 48".



Years of Experience: 9

Certifications/Training:

NASSCO PACP/MACP Certification,
U-1113-06019286

OSHA 10-Hour Safety Certification,
28-004281188

4-Hour Work Zone Traffic Control

First Aid, CPR, and AED (Defibrillator)

Defensive Driving for Non-Commercial
Vehicles

IBAK RapidView Training

Confined Space Entry

Mr. Becker is a wastewater collection system field services specialist. He has successfully completed OSHA safety training and is proficient with inspection and data collection tasks including flow meter and rain gauge installation and maintenance, GPS survey, full descent and zoom camera manhole inspections, dye testing, smoke testing, and night flow isolations.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Flow Monitoring, TRA Tributary Areas, Fort Worth, Texas—Field Supervisor. Flow monitoring program to capture wastewater flow levels in the system tributary to the TRA Northern Region. Services included installation, maintenance, and data collection for 8 meters and 2 rain gauges for a 60-day metering period in pipes ranging from 6" to 48".

Combined Sewer Flow Monitoring Program, Arlington Heights, Illinois—Field Supervisor. Combined sewer flow monitoring program for flow to the MWRD "deep tunnel". Tasks included site investigation; installation, maintenance, monitoring, and data collection and analysis (30 meters/2 rain gauges/12 weeks). The combined system pipe sizes ranged from 24" to 84" and at some points were 9-feet deep.

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Field Supervisor. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8" to 60".

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Field Supervisor. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8" to 48".

Wastewater Master Plan (FTW08336) Flow Monitoring, Freese & Nichols, Fort Worth, Texas—Field Technician. Flow monitoring services to collect data for the master planning involving site selection and equipment, maintenance, monitoring, and data collection and verification (46 meters/20 rain gauges/90 days) in sites ranging from 24" to 96".

System-wide Flow Monitoring, Friendswood, Texas—Field Supervisor. City-wide flow monitoring program (20 meters/4 rain gauges) to identify areas of hydraulic overloading, capacity restrictions, and excessive inflow/infiltration. Services included meter site selection, installation, maintenance, data collection, and data analysis to determine base and peak flows during various dry- and wet-weather conditions. Sites ranged from 10" to 36".



Years of Experience: 9

Certifications/Training

NASSCO PACP/MACP Certification,
U-1113-06019297

OSHA 10-Hour Safety Certification,
002098735

4-Hour Work Zone Traffic Control

Defensive Driving for Non-Commercial
Vehicles

Confined Space Entry

First Aid, CPR, and AED (Defibrillator)

Self Contained Breathing Apparatus
(SCBA) Certified

IBAK RapidView Training

Mr. Bray has extensive experience providing field inspections services in a variety of complex collection systems throughout the country. He has installed and monitored flow meters, and performed manhole inspections, smoke testing, and dye water flooding. He has also supervised television inspection activities.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Short-Term Flow and Rainfall Monitoring Services, DC Water, District of Columbia—Field Supervisor. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

City-wide Flow Monitoring Program, Baltimore, Maryland—Field Technician. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8" to 120".

Wastewater Master Plan (FTW08336) Flow Monitoring, Freese & Nichols, Fort Worth, Texas—Field Technician. Flow monitoring services to collect data for the master planning involving site selection and equipment, maintenance, monitoring, and data collection and verification (46 meters/20 rain gauges/90 days) in sites ranging from 24" to 96".

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Field Supervisor. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8" to 60".

Master Plan Update, Fayetteville, Arkansas—Field Supervisor. Master Plan update involving flow monitoring (20 permanent meters/20 temporary meters/10 rain gauges) Services included equipment installation, maintenance, and data collection and analysis in sites ranging from 8" to 42".

Combined Sewer Flow Monitoring Program, Arlington Heights, Illinois—Field Supervisor. Combined sewer flow monitoring program for flow to the MWRD "deep tunnel". Tasks included site investigation; installation, maintenance, monitoring, and data collection and analysis (30 meters/2 rain gauges/12 weeks. The combined system pipe sizes ranged from 24" to 84" and at some points were 9-feet deep.

Siphon and DuPont Outfall Flow Monitoring, Memphis, Tennessee—Field Manager. Flow monitoring to quantify flow for a siphon and the DuPont Outfall. Services included installation, maintenance, and data collection/verification (5 meters/2 rain gauges/120 days). Sites ranged from 54" to 96" and involved monitoring of caustic flows from an industrial site.



Years of Experience: 14

Education

B.S.—Civil Engineering, (Institute of Engineering-Pulchowk Campus, 2001)

Registrations

P.E.—Texas #117974, Virginia
#0402049068

Certifications/Training

NASSCO PACP/MACP Certification,
U-1008-7545

Confined Space Entry

Software Expertise

Telog Enterprise

POSM, ITpipes

GIS

InfoWorks CS

InfoWorks ICM

Mr. Tamrakar has a broad base of experience conducting data analysis for flow monitoring programs and developing datasets for hydraulic modeling scenarios. He specializes in data and hydraulic analysis services. His experience includes verifying data accuracy, and conducting complex flow analysis to derive dry-weather flow levels and wet-weather impacts and anomalies using graphical and statistical methodologies.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Data Analyst. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8" to 84".

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Data Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

Combined Sewer Assessment/LTCP Support, Joliet, Illinois—Data Analyst. Comprehensive assessment of the eight CSOs and the interceptor system tributary to the WWTP. Services included flow monitoring (28 meters) involving site selection, equipment installation and maintenance, and data collection and analysis using flow balancing techniques, scattergraphs, and hydrographs.

Long Term Flow Monitoring Program, Baltimore, Maryland—Data Analyst. Flow and rainfall monitoring, flume evaluation, and SSO monitoring program over a three-year period. Flume evaluation for 28 flumes involved 28 meters and 9 rain gauges. A temporary metering program 30 meters relocated as needed for 5-month metering periods. Services included site selection/verification, installation and maintenance of equipment, and data processing and analysis.

City-wide Flow Monitoring, Fort Smith, Arkansas—Data Analyst. Flow metering program involving site selection/verification, installation, maintenance, data collection, and data processing for 45 meter sites and 9 rain gauges (60 days).

Master Plan Flow Monitoring, Walker Partners, LLC, Waco, Texas—Data Analyst. Flow monitoring for Master Plan development involving site selection, installation, and data collection/verification (25 temporary meters/10 rain gauges/60 days). Data analysis and verification was conducted providing hydrographs, scattergraphs, and flow summaries.

Flow Monitoring and Master Planning, Hot Springs, Arkansas—Data Analyst. Flow monitoring (35 meters/10 rain gauges) to collect data for post rehabilitation verification for system-wide of manhole, gravity sewer and force main rehabilitation. Sites ranged from 8" to 48". Data analysis involved flow balancing, and assessment of scattergraphs.



Years of Experience: 3

Education

B.S.—Environmental Engineering,
(Southern Methodist University, 2013)

Certifications/Training

First Aid, CPR, and AED (Defibrillator)

Software Expertise

Telog Enterprise

ADS Profile

Flo-Ware

Flowlink

Committees/Technical Organizations

Society of American Military Engineers
(SAME)

Representative Technical Papers

“The Influence of Record Rains on
Sanitary Sewer Collection Systems”,
MWEA and WEF Collections, 2016

Ms. Fryer specializes in flow data analysis and management to support collection system evaluation and improvement programs. In this role, she validates data collection and uploads, verifies data accuracy, and conducts complex analyses to derive dry-weather flow levels, and wet-weather impacts and anomalies using graphical and statistical methodologies.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Data Analyst. Long-term flow monitoring program involved maintenance and data collection for the City’s permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100’ deep to 96” diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Data Analyst. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8” to 84”.

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Data Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10” to 264”.

South Area Flow Monitoring Program, Baltimore County, Maryland—Data Analyst. Flow monitoring program to support hydraulic modeling, capacity assessment and Long-Term Control Plan development, I/I analysis, and SRRR Plan development involving site selection/verification, installation, maintenance, data collection, and data processing (130 meters/25 groundwater gauges/12 months).

Master Plan Flow Monitoring, HDR, Broken Arrow, Oklahoma—Data Analyst. Flow monitoring services for Master Plan development. As a subconsultant, services included site selection, installation, and data collection/verification for a network of 42 temporary meters and 8 rain gauges for a 90-day metering period. Data was collected via wireless telemetry. Data analysis and verification was conducted providing hydrographs, scattergraphs, and flow summaries.

Master Plan Flow Monitoring, HDR, Laredo, Texas—Data Analyst. Flow monitoring services for Master Plan development. As a subconsultant, services included site selection, installation, and data collection/verification for a network of 12 temporary meters and 3 rain gauges for a 90-day metering period. Data was collected via wireless telemetry. Data analysis and verification was conducted providing hydrographs, scattergraphs, and flow summaries.

Siphon and DuPont Outfall Flow Monitoring, Memphis, Tennessee—Data Analyst. Flow monitoring to quantify flow for a siphon and the DuPont Outfall. Services included installation, maintenance, and data collection/verification for 5 meters and 2 rain gauges for a four month metering period. Flow was being monitoring coming from an industrial site with caustic flows providing unique challenges for the 90-day metering period.



Years of Experience: 4

Education

B.S.—Civil Engineering/Mathematics,
(Southern Methodist University, 2012)

Registrations

E.I.T.—Texas #47230

Certifications/Training

OSHA 10-Hour Safety Certification,
28-005643354

First Aid, CPR, and AED (Defibrillator)

Confined Space Entry

Software Expertise

Telog Enterprise Client

AutoCAD

Microsoft Office Suite

Committees/Technical Organizations

Chi Epsilon Civil Engineering Honor
Society

Water Environment Association of Texas

Ms. Rico offers expertise with data analysis and management services to support collection system evaluation and improvement programs. In this role, she validates data collection and uploads, verified data accuracy, and conducted complex flow analysis to derive dry-weather flow levels and wet-weather impacts and anomalies using graphical and statistical methodologies.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Data Analyst.

Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Data Analyst.

Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8" to 84".

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Data

Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

South Area Flow Monitoring Program, Baltimore County, Maryland—Data

Analyst. Flow monitoring program to support hydraulic modeling, capacity assessment and Long-Term Control Plan development, I/I analysis, and SRRR Plan development involving site selection/verification, installation, maintenance, data collection, and data processing (130 meters/25 groundwater gauges/12-months).

Master Plan Update, Fayetteville, Arkansas—Data Analyst.

Master Plan update involving flow monitoring (20 permanent meters/20 temporary meters/10 rain gauges). Services included equipment installation, maintenance, and data collection and analysis in sites ranging from 8" to 42".

Woodlands Wastewater Program WO1, Alan Plummer Associates, San Jacinto River Authority, Texas—Data Analyst.

Sewer evaluation services to investigate the current conditions of the SJRA system and develop an asset management program. Services included short- and long-term flow monitoring of the collection system and lift stations (21 temporary meters/8 temporary rain gauges/6 long-term meters/4 long-term gauges) involving site selection, equipment installation and maintenance, and data collection, verification and analysis using scattergraphs, hydrographs, and flow balancing techniques.

Temporary Flow Metering Program, Memphis, Tennessee—Data Analyst.

Flow monitoring to quantify flow leaving the WWTP sludge management area and entering the collection system. Services included installation, maintenance, and data collection/verification for five meters and two rain gauges in sites ranging from 18" to 96" with locations up to 40 feet in depth. Data analysis was conducted utilizing scattergraphs, hydrographs, and flow balancing.

Mr. Brodner brings experience with a wide range of field inspection services to support collection system evaluations. He has completed necessary safety training and is proficient with inspection and data collection tasks including flow meter and rain gauge installation and maintenance, GPS survey, full descent and zoom camera manhole inspections, dye testing, smoke testing, night flow isolations, and CCTV inspections.

RELATED PROJECT EXPERIENCE

Years of Experience: 6

Certifications/Training

OSHA 10-Hour Safety Certification

4-Hour Work Zone Traffic Control

Defensive Driving for Non-Commercial Vehicles

First Aid/CPR Certified

Confined Space Entry

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Technician. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

OU Permanent Flow Monitoring, Norman, Oklahoma—Field Technician. Permanent flow metering program to collect billing data for services between the University and the City of Norman. Services included maintenance, monitoring, and data collection; verification; and monthly data delivery for network of 18 meters in sites ranging from 6" to 36".

Flow Monitoring, Freese & Nichols, Palestine, Texas—Field Technician. Flow monitoring services provided as a subconsultant to Freese & Nichols. Services included installation, maintenance, and data management for 4 flow meters for a 60-day metering period.

Olness-Lackland AFB Flow Monitoring, Bake Engineering, San Antonio, Texas—Field Technician. Flow monitoring services provided as a subconsultant included installation, maintenance, and data management for 17 flow meters for a 60-day period.

SSES Flow Study, Russellville City Corporation, Arkansas—Field Technician. Comprehensive sanitary sewer evaluation study to meet the requirements of the City's AO involving flow and rainfall monitoring to support hydraulic modeling and direct condition field inspections. Services included site selection, installation, maintenance, and data collection and verification (28 meters/6 rain gauges) in sites ranging from 8" to 48".

Master Plan Flow Monitoring, HDR, Laredo, Texas—Field Supervisor. Flow monitoring services provided as a subconsultant for Master Plan development involving site selection, installation, and data collection/verification (12 temporary meters/3 rain gauges/90-days) in sites ranging from 6" to 48".

System-wide Flow Monitoring, Friendswood, Texas—Field Technician. City-wide flow monitoring program (20 meters/4 rain gauges) to identify areas of hydraulic overloading, capacity restrictions, and excessive inflow/infiltration. Services included meter site selection, installation, maintenance, data collection, and data analysis to determine base and peak flows during various dry- and wet-weather conditions. Sites ranged from 10" to 36".

Years of Experience: 3

Certifications/Training

NASSCO PACP/MACP Certification,
U-1113-06019294

OSHA 10-Hour Safety Certified,
28-005643359

First Aid, CPR, and AED (Defibrillator)

Work Zone Traffic Control

Defensive Driving for Non-Commercial
Vehicles

Confined Space Entry

Mr. Emmerling offers experience with conducting a wide range of specialized field inspections to measure conditions and performance of collection systems. He has installed and maintained flow monitoring equipment in large- and small-diameter sewers and collected condition data through manhole inspections, smoke testing, and dye water flooding using GPS-enabled data collectors.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Short-Term Flow and Rainfall Monitoring Services, DC Water, District of Columbia—Field Technician. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

Hot Springs Flow Monitoring and Hydraulic Modeling, Arkansas—Field Technician. Flow monitoring (35 meters/10 rain gauges) and InfoWorks hydraulic modeling (2,100,000 LF, 160 pump stations, 3,300 grinder pumps) to validate completed rehabilitation measures for manholes, gravity sewer, and force mains. The SECAP plan outlining measures to improve capacity was updated.

Short-Term Flow Monitoring, Memphis, Tennessee—Field Technician. Short-term flow monitoring program (10 meters/3 rain gauges/60 days) involving site selection, equipment installation and maintenance, and data collection and analysis to identify capacity and performance issues in the system.

Master Plan Flow Monitoring, HDR, Midland, Texas—Field Technician. Temporary flow monitoring program to support development of the Master Plan. Services included installation, maintenance, and data collection/verification (30 meters/5 rain gauges/30 days). Sites ranged from 8" to 42".

Sanitary Sewer Flow Monitoring, Memphis, Tennessee—Field Technician. Temporary flow metering program involving site verification, installation, data analysis/verification, and I/I analysis using 11 flow meters and 3 rain gauges for a 60-day period in sites ranging from 14" to 47".

Upper Village Creek Flow Monitoring, JQI, Fort Worth, Texas—Field Technician. Flow monitoring services provided as a subconsultant involved site verification, equipment installation, equipment maintenance, data collection through wireless telemetry, and data verification services (8 meters/2 rain gauges/60 days). Sites ranged from 8" to 60".

Grand Prairie TRA Interceptor Flow Monitoring, ESPY, Grand Prairie, Texas—Field Technician. Installation and maintenance, and data collection and analysis for 5 meters installed in 102" interceptor transporting flows to the Trinity River Authority.

Mr. Pippins has conducted a wide range of field inspection services including the installation and maintenance flow meters and rain gauges. He has completed OSHA-compliant safety training and is proficient with inspection and data collection tasks including GPS survey, full descent and zoom camera manhole inspections, dye testing, smoke testing, night flow isolations, and CCTV inspections.

RELATED PROJECT EXPERIENCE

Years of Experience: 1

Certifications/Training

OSHA 10-Hour Safety Certification,
28-005643358

Defensive Driving for Non-Commercial
Vehicles

First Aid/CPR Certified,

Confined Space Entry

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Technician. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Flow Monitoring and Modeling, The Wallace Group, Woodway, Texas—Field Technician. Flow monitoring and hydraulic modeling (InfoWorks) provided as a subconsultant. Services included site verification, equipment installation and maintenance, and data collection and verification for a network of 8 meters and 4 rain gauges (84 days) and construction and calibration of a hydraulic model simulating all 10-inch and larger pipes (45,000 LF).

TRA Interceptor Flow Metering, RPS Espey, Trinity River Authority, Texas—Field Technician. Short-term flow monitoring (3 meters/1 week) to capture flow levels to measure upstream and downstream flows at the entry point of a 72-inch interceptor into a 102-inch interceptor, and on the 102-inch pipe and the upstream 96-inch pipe.

I/I Assessment Flow Monitoring, Westlake, Texas—Field Technician. Temporary flow monitoring to assess I/I levels in the collection system. Services included site selection, equipment installation and maintenance, and data collection and verification (4 meter/1 rain gauge/240 days) in sites ranging from 12" to 24".

Williamson Creek Basin Flow Monitoring, Clark & Fuller, Temple, Texas—Field Technician. Short-term flow monitoring (5 meters/3 rain gauges/60 days) to evaluate I/I levels in the basin. Services included site verification, equipment installation and maintenance, and data collection and analysis.

2014/2015 SSES Program, Round Rock, Texas—Field Technician. Sewer inspection program to assess conditions in Basins LC09_Z, LC15_Z, LC16-Z, LC17-Z, LC18-Z, LC19-Z, BC20-Z, CC32-Z, CC34-Z, CC35-Z, and CC37-Z. Services included review of City-collected manhole inspection data (1,200), smoke testing (355,000 LF), and review of TV pipe inspection video (355,000 LF).

SSES 2015 and Manhole Rehabilitation, Flower Mound, Texas—Field Technician. 2015 Phase II sanitary sewer evaluation survey and manhole rehabilitation. Tasks included flow monitoring; rainfall monitoring; data analysis; manhole inspections; smoke testing; dyed water flooding; TV inspection and review; mapping; defect analysis and report; and manhole rehabilitation design.

ADS, LLC TEAM MEMBER CREDENTIALS

Patrick Stevens, PE

QA/QC/Technical Advisor



Mr. Stevens is Vice President of Engineering and has over 45 years of experience in wastewater collection system engineering. He works closely with municipal officials, consulting engineers, and federal and state regulators to provide the information utility agencies need to support successful infrastructure management. Mr. Stevens is an expert resource and represents ADS within the wastewater industry and its associated technical and trade organizations.

Credentials

- Experience: 45 years
- M.S.—Environmental Engineering, Purdue
- B.S.—Aeronautical Engineering, Purdue

Professional Memberships/Certifications

- U. S. Patent # 5,942,698 – Virtual Flow Meter for remotely detecting and measuring SSOs, 1999
- Co-instructor since 2007 for an annual Sewer Rehabilitation Strategy Workshop for the Underground Construction Technology Conference

Professional Experience

- King County, Washington—Deputy Program Manager: Seattle, Washington - Managed a major project to measure I/I throughout King County and 34 satellite agencies. This project was the largest I/I project ever undertaken in the United States with 806 flow monitors in simultaneous operation.
- Indianapolis Department of Public Works, Indianapolis, Indiana—Director. Responsible for all aspects of the Department which employed approximately 980 people. Managed \$100 million in annual operating budget and approximately \$40 million in annual Capital Projects. Reported to the Mayor as a cabinet level position.

Chuck Franklin

Field Services Manager



Mr. Franklin's experience has focused primarily on long-term, temporary flow monitoring and sewer system evaluation survey projects throughout the United States and Mexico. He has served as the Project Manager on some of the largest flow monitoring projects in the U.S. including Houston, TX; Nashville, TN; Baton Rouge, LA; Omaha, NE; and San Diego, CA.

Credentials

- Experience: 28 years
- Blinn Jr. College, 1981
- University of Houston, 1982
- Wastewater Operations, California State University, Sacramento

Mr. Franklin serves as both a Sr. Project Manager and as the Manager for the AD Houston Technical Service Center.

Professional Experience

- Citywide Hydraulic Modeling Field Support, Houston, Texas (2012– 2015)—Sr. Project Manager. Sanitary sewer evaluation surveys and flow monitoring of several basins. Manhole inspections and pump station evaluations were performed to provide the City the necessary information to calibrate and validate their hydraulic modeling efforts. ADS also provided GPS coordinates and radar adjusted rain fall data to assist in the execution of their on-going efforts.
- San Antonio Water System, Texas (2012 - 2016)—Project Manager for the Wastewater Flow Services project involving installation and construction of 30 temporary monitoring locations throughout the entire wastewater collection system to support hydraulic modeling and reduce I/I.
- I/I Analysis Study, Frisco, Texas—Project Manager for four studies conducted to identify and prioritize sources of infiltration and inflow (I/I). The program incorporated temporary flow monitoring and a full range of sewer system evaluation services.

Dennis McPhearson, PMP*Field Supervisor***Credentials**

- Experience: 25 years
- Master of Business Administration, University of Phoenix, 2005
- Bachelor of General Studies—University of Louisiana, 1988

Professional Memberships and Certifications

- Project Manager Professional, Global
- Safety Training Level 4
- Confined Space Training
- SAR Equipment Training
- CPR and First Aid Training

Mr. McPhearson has been with ADS for over 25 years and has performed sewer flow evaluations for municipalities covering nearly every state in the U.S. Mr. McPhearson has trained and managed hundreds of field personnel during his 25+ years.

Professional Experience

- Service Center Manager—Nashville, Tennessee. Managed a service center consisting of 2 full time field crews servicing a network of 80 long-term sanitary sewer monitors, 20 long-term CSO monitors, and 90 temporary flow meters.
- Field Manager/Corp Trainer, New York, New York—With special skills Mr. McPhearson volunteered as field crew on a long-term 15-monitor CSO project. Responsibilities were to install 15 monitors in very deep and very dangerous pipes, 40 – 110 ft. deep manholes consisting of a piping system of 60 – 120 inches in diameter. This project was one of the most difficult ever encountered thus far, but the night work, heavy traffic, and frigate winter temperatures of sometimes-below zero never stopped production.
- Field Manager/Corp Trainer, Birmingham, Alabama—Mr. McPhearson field managed a multi-million dollar long-term wastewater flow monitoring and SSES project. Responsibilities included map work, site selection, investigation, and installation of 165 long term monitors. Additionally, managed and trained 7 field crews in corporate procedures. SSES tasks performed included manhole inspections, line cleaning, and smoke testing.

Joe Freitas*Field Supervisor***Credentials**

- Experience: 18 years
- 40-Hour Hazwopper

Professional Memberships and Certifications

- ADS Field Representative
- Confined Space Entry
- Personal Protection Equipment (PPE)
- First-Aid and CPR (Red Cross)
- Blood Borne Pathogens and Hygiene
- Hazardous Materials
- Level IV Certification

Mr. Freitas is responsible for the day-to-day field operations for a number of small to medium projects or one large project. In this capacity he ensures projects are completed on time and within budget. Mr. Freitas performs equipment inspections and calibrations, regulates confined space work, and monitors compliance to health and safety policies. He has experience in flow monitoring, capacity analysis, I/I reduction study, and SCADA projects. His duties include site locations of flow meters, installation and servicing of flow meters.

Professional Experience

Mr. Freitas' project experience includes New Orleans, Louisiana Temporary Flow Monitoring; New Orleans, Louisiana Stormwater and Meter Sampling; and Crowley, Louisiana SCADA. In addition, he has worked as Field Manager on the following San Antonio Water System, Texas projects:

- 2009 Wastewater Flow Monitoring Services Contract. Flow monitoring within the Western watershed Temporary flow monitoring project for an I/I analysis and capacity analysis.
- 2010 Tri-Annual Wastewater Flow Monitoring Services Contract. Flow monitoring within selected monitoring locations throughout the wastewater collection system for an I/I analysis and capacity analysis.
- 2012 Tri-Annual Wastewater Flow Monitoring Services Contract. Flow monitoring for the Aquifer Protection & Evaluation Department to detect and prevent any possible sanitary sewer overflows by deploying an early warning system.

Michael Lopez*Field Technician***Credentials**

- Experience: 2 years

Professional Memberships and Certifications

- Safety Training Level 4
- Confined Space Training
- SAR Equipment Training
- CPR and First Aid Training

Mr. Lopez has 2 years of infiltration/inflow, water system monitoring, and sewer system evaluation experience. As Field Assistant, he is responsible for day-to-day field operations. Mr. Lopez has also worked on some of the largest long-term flow monitoring networks in existence today.

Professional Experience

Mr. Lopez has experience in flow monitoring, capacity analysis, and I/I reduction projects. His duties include site locations of flow meters, installation and servicing of flow meters, manhole inspections, smoke testing, dye testing and working with television inspection crews. Mr. Lopez performs manhole inspections and sewer line smoke testing associated with sanitary sewer evaluation surveys. Additionally, he performs equipment inspections and calibrations, regulates confined space work, and monitors compliance to health and safety policies.

Project experience includes San Antonio Water Systems, San Antonio River Authority, Houston, Texas and Tulsa, Oklahoma.

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TAB 9

EQUIPMENT RESOURCES

EQUIPMENT

RJN and our teaming partner, ADS, own and maintain the equipment to support flow monitoring tasks outlined in the scope of work for this project. Hardware to be used:

- ADS Triton+ area velocity applications–data sheet attached
- ADS ECHO for level only–More economical version of the Triton with Long Range Depth Sensors, as specified in Section 4.10 of the specification

EQUIPMENT SPECIFICATIONS

The equipment and data delivery system provided by RJN will meet specifications for this project in its entirety. The primary depth sensor shall be ultrasonic with a resolution to the nearest 0.01 foot. Each site shall also include level measurement redundancy by means of a pressure sensor. The primary velocity sensor shall use Doppler technology.

Remote Terminal Units (RTU) shall be provided at each flow monitoring and rain gauge location to remotely collect the data:

- **ADS Triton+ Flow Meter**
 - Doppler velocity, underwater ultrasonic depth, down-looking ultrasonic depth and pressure depth
 - Integrated wireless connection for remote telemetry
 - Powered by an internal battery with an estimated life of 6 months under these specifications
 - Intrinsically-Safe (IS) certification by IECEx for use in Zone 0/Class I, Div. 1, Groups C & D, and ATEX Zone 0
- **ADS ECHO Meter**
 - Overflow prevention through continuous collection system monitoring, from early warning of level increase to surcharge detection
 - Installs near the top of the manhole and can

measure flow depths up to 20 feet (6.1m) from the face of the sensor

- Supports up to four alarm thresholds: Low Level, Full Pipe, High, and High High. An Overflow Alarm will indicate when flow levels have exceeded the manhole depth.
- Supports a smart logging rate enabling the monitor to enter into a faster logging rate when an alarm threshold is crossed and return to the normal logging rate when no longer in an alarm condition. Supports a logging rate of 1, 2, 5, 15, and 30 minutes, as well as 1, 2, 12, and 24 hours.
- Provides daily monitor health checks including battery voltage, wireless signal strength, status of data delivery attempts along with additional diagnostic information
- Mounting bar and unit contain integral bubble levels to facilitate proper installation

- **Telog Enterprise System**

- RJN-hosted Enterprise Server
- The data will be delivered in Telog EDF format to a City-hosted FTP site for automated importing using the City's E-AIM3 software module
- RJN will assist the City with the integration of the Telog E-AIM3 module, at no additional costs

Equipment specifications for the ADS meters and Telog Enterprise are provided beginning on page 59.

MEMORY AND STORAGE

Depth and velocity data will be collected and stored every 5 minutes. On an hourly basis, data will be forwarded to the RJN Enterprise host computer. Data will be automatically backed up to a separate secure storage device and retained for the project duration.

DEVICE POWER AND TRANSMISSION

Device power for the flow monitoring equipment will be provided by battery power. The flow monitoring units have the capability to provide reliable data for more than 6 months at the specified 5-minute recording interval. Batteries will be replaced during routine visits to ensure

the proper voltage is maintained in all units. Additional information is provided on the following pages.

EQUIPMENT/PARTS INVENTORY

RJN maintains a full complement of state-of-the-art equipment, as shown below, including a fleet of specially equipped field inspection vans and trucks equipped to provide rapid access for confined space entry; each vehicle has heavy-duty batteries, meter storage bins, and traffic control equipment.

RJN EQUIPMENT INVENTORY

Quantity	Item
400	Depth and Velocity Meters (200 meters equipped with Data Telemetry via Cell Phone RTU)
100	Telog RU33 and 3307 RTU data loggers for wireless telemetry applications
25	Portable Velocity Probes (PVM)
20	Digital Lift Station Event Recorders
2	Portable Pump Station Force Main Dual Channel Flow Meters
75	Continuous Recording Digital Rain Gauges with Data Telemetry via Cell Phone RTU
50	Pre-calibrated Weirs
30	Confined Space Entry Equipment Sets Gas Detectors (Oxygen, Combustible, Toxic) Metal Detectors

The RJN equipment proposal is in full compliance with the specifications.

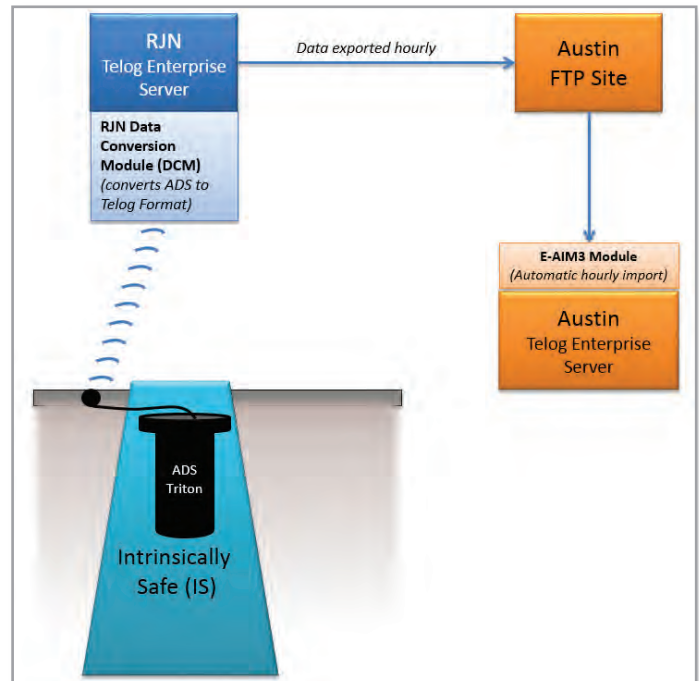
SPARE PARTS INVENTORY

The RJN/ADS team has the largest inventory of meters individually of any flow service providers in the country and will maintain an inventory of a minimum of 10% spare meters on the project.

In the event that some event occurs that requires more hardware than is available on site, ADS will ship meters from either their Houston Service Center or their St. Louis parts warehouse overnight to ensure that any downtime can be mitigated.

DATA TRANSFER PROTOCOLS

RJN will enable raw flow data from the flow meters to be automatically posted to the City's dedicated FTP site on an hourly basis using two specialized modules (below).



RPM DATA CONVERSION MODULE (DCM)

This module enables the remote collection of data from various meters. Data is collected using base meter configurations and data collection software and then converted into Telog EDF format. This enables data to be immediately and automatically imported into the Telog Enterprise client. The RJN Administrator may add or delete flow meters and assign site names as the project dictates. Communication to the meter will remain intact through the meter technology, allowing alarming, troubleshooting, and diagnostic capabilities.

E-AIM3 MODULE

The E-AIM3 module resides on the City's Telog Enterprise server that will automatically import the data from the City's dedicated FTP site to the City's Enterprise server on an hourly basis. RJN will assist the City with the integration of this module at no additional costs to make sure the expected data paths are fully functional.

HARDWARE

ADS TRITON+®

The new ADS TRITON+® is a "Fit-for-Purpose" open channel flow monitor for use in sanitary, combined, and storm sewers. It is designed to be the most versatile flow monitoring system available for wastewater collection applications. It supports single pipe or dual pipe flow measurement installations and is certified to the highest level of Intrinsic Safety.

ADS TRITON+

This multiple technology flow monitor will power almost every available sensor technology that is used in wastewater applications today. It is the most versatile and cost-effective, multiple-technology flow monitor on the market. The TRITON+ includes four multiple technology sensor options: a Long Range Depth Sensor, a Peak Combo Sensor, a Surface Combo Sensor, and an Ultrasonic Level Sensor (see inside for technology and specifications). This array of monitoring technologies provides for unmatched flexibility in a fully integrated, fit-for-purpose monitoring platform.

The TRITON+ platform adapts to a wide range of customer applications and budgets. It can be configured as an economical single sensor monitor or dual sensor monitor. It offers a longer battery life and fewer parts for a more reliable system. This provides a lower purchase price and a lower ownership cost over the life of the monitor. The TRITON+ has the lowest operational cost per data sample of any Intrinsically Safe flow monitor available.



About ADS

A leading technology and service provider, ADS Environmental Services® has established the industry standard for open channel flow monitoring and has the only ETV-verified flow monitoring technology for wastewater collection systems. These battery-powered monitors are specially designed to operate with reliability, durability, and accuracy in sewer environments.

TRITON+ Features

- Versatile performance that is easy to install and operate
- Two sensor ports supporting 4 interchangeable sensors providing up to 6 sensor readings at a time
- Single or dual pipe/monitoring point measurement capabilities
- Multi-carrier cellular 3G/4G UMTS/HSPA+ or Verizon® CDMA/EV-DO wireless communications; direct serial communications also available
- Industry-leading battery life with a wireless connection providing up to 15 months at the standard 15-minute sample rate (*varies with sensor configuration*)
- External power and Modbus network connectivity option available with an ADS External Power and Communications Unit (ExPAC™) and a 9-36 VDC power supply or an ADS XBUS™ which includes a power supply
- Analog and digital I/O expansion (4-20 mA and dry contacts) available with an ADS External I/O unit (XIO™)
- Modbus protocols enabling RTUs to help simplify SCADA system integration
- Supports the delivery of CSV files to an FTP site at user-defined intervals, and direct monitor SMS and e-mail messaging
- Supports actuation of a water quality sampler for flow proportional or level-based operation
- Monitor-Level Intelligence (MLI®) enables the TRITON+ to effectively operate over a wide range of hydraulic conditions
- Superior noise reduction design for maximizing acoustic signal detection from depth and velocity sensors
- Five software packages for accessing flow information: Qstart™ (configuration and activation); FlowView Operations (web-based alarming); Slicer.com® (I/I analysis); FlowView Portal® (online data presentation and reporting); and Profile® (data collection, analysis, and reporting)
- Intrinsically-Safe (IS) certification by IECEx for use in Zone 0/Class I, Division 1, Groups C & D, ATEX Zone 0, and CSA Class I, Zone 0, IIB
- Thick, seamless, high-impact, ABS plastic canister with aluminum end cap (meets IP68 standard)
- Innovative circuit board dome-enclosure protects and limits exposure of electronics when opening the canister to change the battery

To Learn more, visit www.adsenv.com/TRITON+

ADS ENVIRONMENTAL SERVICES®
A Brand of ADS LLC

ADS' Self-Contained Solutions for Power, Communication, Analog and Digital I/O and Modbus

The **TRITON+** COMM+EXT PWR port is used for external power via the ADS XIO, XBUS or ExPAC devices, delivery of Modbus output values as well as for on-site, direct monitor communication.

XIO Features

- Process variables measured by the **TRITON+** can be converted to two (2) 4-20mA loop output signals for SCADA systems or local display and control
- Logging capabilities of the **TRITON+** can be used for two (2) 4-20mA input process variables measured by other instrumentation
- Alarms produced by the **TRITON+** Monitor Level Intelligence (MLI) device can be output on the two (2) XIO relay contacts for process actuation
- Two (2) switch, solid state or dry contact digital inputs can be sampled and logged
- Design facilitates easy field wiring
- Supports easy plug and play configuration and start-up
- Associated Apparatus certification for use with approved equipment in Zone 0/Class I, Division 1, Groups C & D; ATEX Zone 0; and CSA Class I, Zone 0, IIB hazardous areas
- Rugged indoor/outdoor NEMA 4x case with hinged clear cover
- Accepts 85-264 VAC, 120-375 VDC; 47-62 Hz; 1.1A@110/0.59A @250 VAC
- Supplies 8 – 11.5 VDC, 500mA power to the **TRITON+** flow monitors



XBUS Features

- Supports Modbus RTU, ASCII and TCP communications
- Wireless Modbus via **TRITON+** internal modem communications
- Connects to wired networks via RS485 or RS232
- Supports easy plug and play configuration and start-up
- Associated Apparatus certification for use with approved equipment in Zone 0/Class I, Division 1, Groups C & D; ATEX Zone 0; and CSA Class I, Zone 0, IIB hazardous areas
- Rugged indoor/outdoor NEMA 4x case with hinged clear cover
- Accepts 85-264 VAC, 120-375 VDC; 47-62 Hz; 1.1A@110/0.59A @250 VAC
- Supplies 8 – 11.5 VDC, 500mA power to the **TRITON+** flow monitors



ExPAC Features

- Designed to be housed in another enclosure
- Associated Apparatus certification for use with approved equipment in Zone 0/Class I, Division 1, Groups C & D; ATEX Zone 0; and CSA Class I, Zone 0, IIB hazardous areas
- Requires DC power input between 9 and 36 volts and a minimum of 15 watts
- Supplies DC power of 8 to 11.5 volts, 500mA to the **TRITON+** flow monitors
- RS485 and RS232 Modbus output connections to SCADA systems
- Wireless Modbus via **TRITON+** internal modem communications
- Supports Modbus RTU, ASCII and TCP/IP communications



ADS ENVIRONMENTAL SERVICES®

ADS. An IDEX Water Services & Technology Business. **IDEX**

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HARDWARE

ECHO™

LEVEL-ONLY MONITORING

This new monitor from ADS provides utilities with an economical level-only monitoring solution providing early warning of preventable blockages; such as fats, oils, and greases (FOGs); root intrusion; silt/sediment; and debris.

The ADS ECHO is a cost effective, easy-to-use monitoring system for overflow prevention. ECHO technology is designed for ultra low power consumption, yielding up to a five-year battery life based on modem configuration.

- * Overflow prevention through continuous collection system monitoring, from early warning of level increase to surcharge detection
- * Deploy a fleet of level-only monitors with the flexibility to move monitors to multiple locations, including problem sites, such as places with recurring SSOs or manholes upstream of pump stations or siphons that require ongoing maintenance
- * Quick, easy installation (less than 10 minutes) - no manhole descent required
- * Certified as intrinsically safe such that the ECHO cannot ignite a hazardous gas or dust mixture and cause an explosion in the sewer

Features

- Installs near the top of the manhole and can measure flow depths up to 20 feet (6.1m) from the face of the sensor
- Installs in less than 10 minutes with no tools required.*
- Supports up to four alarm thresholds: Low Level, Full Pipe, High and High High. All but the Full Pipe alarm are user configurable. Customer can be warned of alarm conditions through ADS FlowView™ web-based software, email or SMS text messaging.
- Supports an Overflow Alarm indicating that flow levels have exceeded the manhole depth
- Supports a *smart logging rate* enabling the monitor to enter into a faster logging rate when an alarm threshold is crossed and return to the normal logging rate when no longer in an alarm condition. Supports a logging rate of 1, 2, 5, 15, 30 minutes and 1, 2, 12 and 24 hours.
- Provides daily monitor health checks including battery voltage, wireless signal strength, status of data delivery attempts along with additional diagnostic information
- Supports data delivery to ADS FlowView web-based software as well as up to two FTP sites. Data delivery via email is also supported. More frequent data delivery rates available during alarm conditions.
- Mounting Bar and unit contain integral bubble levels to facilitate proper installation

* Some tools may be required for external antenna installation depending on wireless signal strength.



Mounting Options

Installation Bar



Wall-Mount



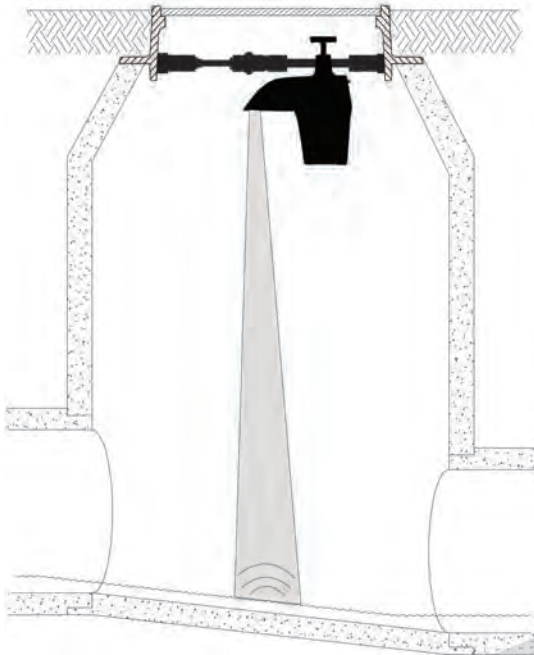
ECHO with installation bar mounted on manhole frame



ECHO with installation bar attached

Typical Manhole Installation

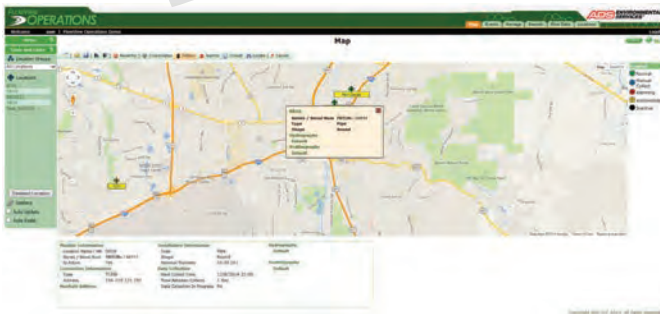
The ECHO features proven ADS Doppler technology with advanced digital signal processing. A single high-power transducer housed inside a tuned parabolic reflector reliably reads up to 20 feet (6.1m).



Applications

The ADS ECHO monitor is designed for use in many applications, including:

- Comprehensive Sewer Performance Monitoring
- Early warning and notification of sewer blockages and impending overflows
- Combined Sewer Overflow (CSO) monitoring
- Sanitary Sewer Overflow (SSO) monitoring
- Sewer Capacity Studies



FlowView Software Interface

The intuitive, graphical interface replicates client system maps for quick identification of system assets and provides drill-down functionality.

Specifications*

Enclosure

Single piece, injection-molded, glass-filled polycarbonate meeting IP68 standards. Measuring sensor is an integral part of the monitor enclosure.

Weight (including battery)

11.5 pounds (5.21kg)

Dimensions

6 inches (152 mm) wide x 17 inches (432 mm) high x 15 inches (380 mm) long

Operating Temperature

-4 to 140 degrees F (-20 to 60 degrees C)

Mounting

Mounts to an expandable bar which requires no tools for installation or manhole descent. Optional wall mount hardware is available.

Measurement Detail

Dead Band: 0.00 inches (0 mm)

Range: 0.00 inches from the bottom of the sensor housing to 240 inches (6.1m)

Resolution: 0.01 inches (0.25 mm)

Accuracy: 0.25% of the sensor range measurement or 0.13" (3.2 mm); whichever is greater, in a homogeneous temperature air column

Drift: 0.00 inches (0 mm)

Temperature Compensation: Actual sensor temperature is used in combination with the seasonal manhole temperature to obtain the best depth accuracy and precision

Overflow Detection: A sealed gauge pressure sensor detects when surcharge depths exceed the depth of the manhole causing the monitor to initiate an alarm notification

Memory

1MB program memory, 256 KB RAM
8MB NV flash memory, 32KB NV FRAM

Data Storage

At a 5-minute Sample Rate:
3,784,704 bytes, 630,784 storage locations
Approximately 728 days for two stored entities

Clock

Battery-backed real-time clock module (synchronized to the nearest cell tower)

Power

Replaceable 9V 60Ah alkaline battery pack with up to 5-years battery life depending on modem configuration

Communications

Cellular Modem: Third-party, FCC/IC/EC and carrier approved, global coverage, commercial UMTA/HSPA+/GSM modem.
FCC ID: R17HE910.

Local: On-Site, local wireless connection (Bluetooth® technology)

Antenna

SMA connector on enclosure housing supports external antenna provided by ADS or customer. Antenna may be installed in or outside the manhole depending on wireless signal strength in the area.

Firmware Upgrades

Remotely via wireless connection or locally using on-site wireless connection

Diagnostics

Two primary options for monitoring and acting on diagnostic information:

- Daily Check-In messages delivered automatically to user via text message or email that provide battery status and wireless signal strength as well as additional diagnostic information through an email attachment
- Direct Call to the monitor through ADS Qstart™ software for reading the latest monitor status and test firing the ultrasonic sensor

Intrinsically Safe

US – IECEx Ex ia IIB T3 (152 C) Ga equivalent to North American Class I,

Division 1, Groups C&D

CANADA – CSA Ex ia IIB T3 (152 C)

EU and rest of world – ATEX and IECEx Ex ia IIB T3 (152 C) Ga

* Specifications met during preliminary laboratory testing.

ADS LLC

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Toll Free: 1.800.633.7246

Telogers *Enterprise*

The Only Solution That Fits



Remote Data



On Your Desktop



24/7/365

Your System. Your Data. Your Way.

The Enterprise System

Telogers Enterprise is a comprehensive, scalable remote monitoring system created specifically for water and energy utility distribution and collection systems. It provides real-time information and alarms, as well as historical data, from remote sensors, instruments and analyzers. Using Enterprise, you can see exactly what's happening in the field within minutes of a change or an event—and you can make informed operational decisions, taking proactive steps to prevent problems.

This single-supplier solution allows you to gather, manage, archive and share information throughout your organization. Data from all remote sites reside on a common platform, setting a new standard for accessibility and usefulness of the information you collect.

The comprehensive system brings your data together like never before, using the universal compatibility of Telog products:

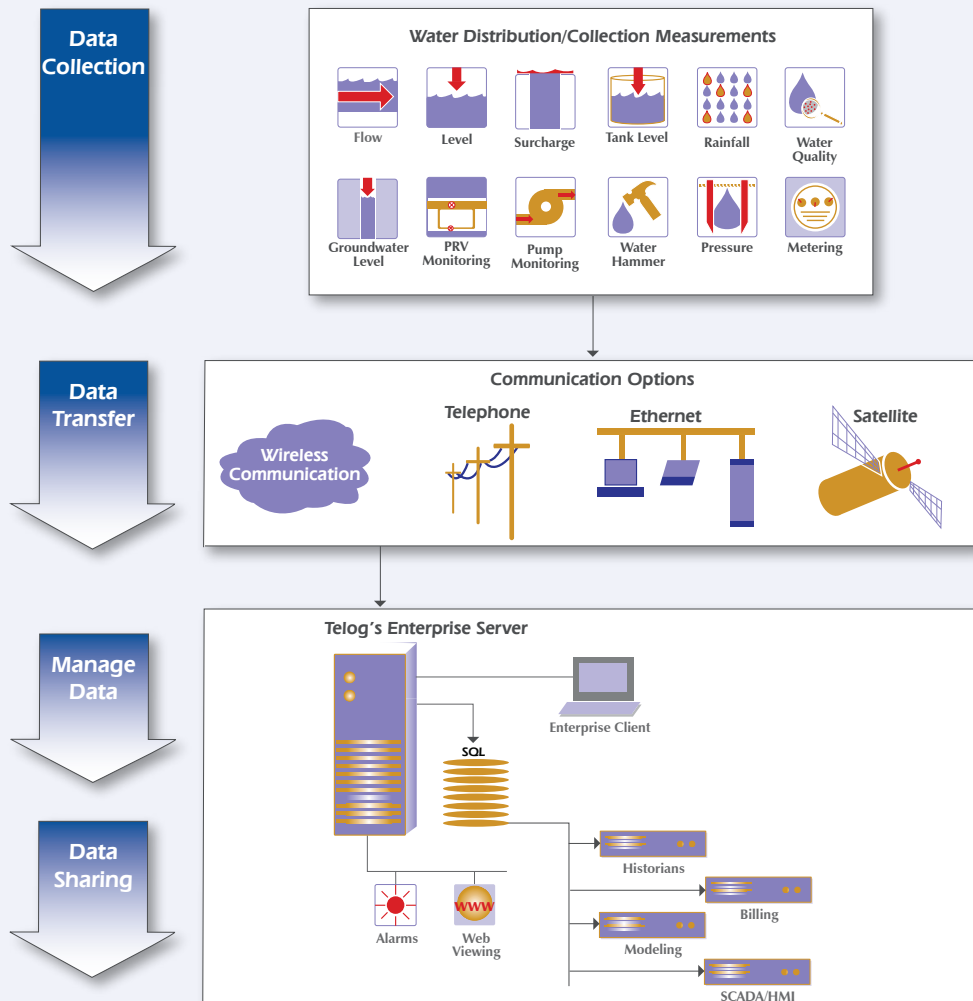
Data Collection - Telog's field Recording Telemetry Units (RTUs) interface smoothly with any manufacturer's field sensors and instruments.

Data Transfer - Transferring data to the host computer takes place frequently and automatically.

Manage Data - Users can easily organize, view, generate reports and archive data.

Data Sharing - Share data over your intranet or the Internet; data recipients only need a web browser to view both tabular and graphical data.

Also you can share data with third party software applications including SCADA/HMI, billing, modeling and GIS.



The Only Solution That Fits

Got data issues? The Enterprise system solves them all.

Use the instruments you need, and let Enterprise sort it out.

Telog RTUs interface directly with all of your remote monitoring assets: Sensors, meters and instruments. No matter what you've got in the field, Telogers Enterprise collects the data and integrates it with a common database.

One software package, one vendor.

All of your remote data is collected in one common database. View your data, get reports, analyze and store your information, all with one solution. Your compatibility issues between software programs and vendors are over, once and for all.

You'll always know what's going on.

When there's a situation in the field, Telog RTUs automatically forward alarms to the Telogers Enterprise server for processing and forwarding. Have Enterprise call your pager, text your mobile phone or PDA, or email other users. Acknowledgment processing is also provided.

You'll have more information in real time—with no human intervention.

Talk about out-of-the-box thinking: The networked communication system in Telogers Enterprise configures itself automatically, with no user involvement. You can stop dialing up your field units to download information—Enterprise does that automatically, too.

Phone, cellular, radio, satellite, Ethernet—it's your choice.

Choose the communication technology best suited to your application; the Enterprise system will support it. Since no single communication technology works all the time everywhere, you can apply what is appropriate to each monitoring site.

Historical data at your fingertips.

There's no need for a separate historian program to help you compare and store data. Enterprise is an historian performing this function for you, making stored data available smoothly and easily. Using import tools, you can consolidate earlier collected data from other applications into Enterprise. And, since Enterprise employs SQL server as its database, there is no practical limit to available data storage.

On the road, at home, anywhere—Enterprise brings your information to you.

Get data as often as you want, when you want.

You determine the remote data collection rates: Weekly, daily, hourly, every minute or in response to site condition alarms. Telogers Enterprise collects the data on your schedule, and reports it immediately, in real time.

See your data instantly on a dedicated web site.

No longer do you need to run to the command center to see what's happening in the field. With Telogers Enterprise, you can view your information on a password-protected web site using the most common web browsers, literally from anywhere in the world. Take charge of issues faster and with more real-time information than ever before.

You choose which data to share.

With the Enterprise Web Module you can control which data are visible over your intranet or the Internet. Each user can access only those data allowed for his or her username and password.

Not all data is the same.

Data comes in different sizes; shapes and frequency. Enterprise expects this and collects a variety of data types including periodic trend data, statistically compressed data, time stamped event data, transient data, and computed data.

Original data always available.

Enterprise provides great editing tools to permit correcting or repairing collected data along with an audit trail of each edit. But the original is always maintained unaltered in the database.

Share data with other systems.

Enterprise employs an industry standard SQL database permitting convenient use by other applications such as modeling, billing, SCADA/HMI, GIS and other Historians.

Quality test your data; automatically.

Most data is predictable under similar circumstances. The Enterprise calculation engine can be configured to test each new data point against what is expected for that measurement and alert the operator when something appears amiss. This feature can produce timely notification of potential field problems while saving enormous data review time by valuable personnel.

Schedule maintenance as needed.

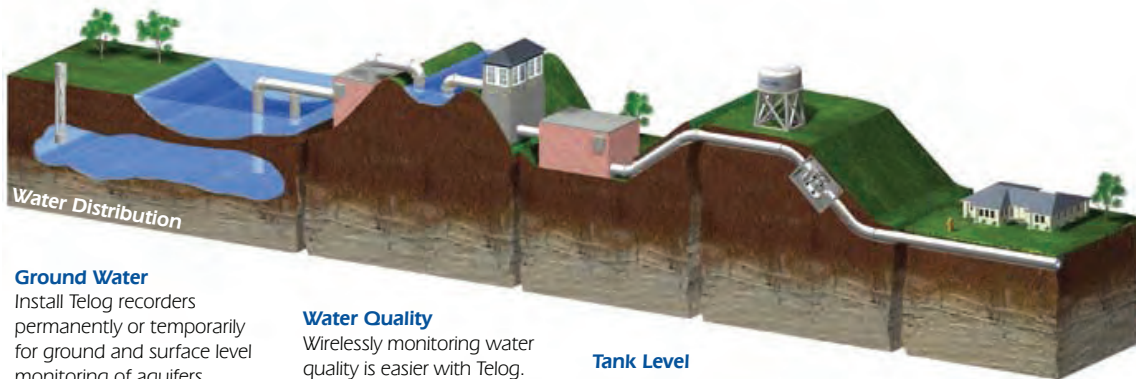
A real-time data acquisition system that monitors site environment conditions, equipment battery status and auto quality controls the measurements allowing the system operator to schedule site visits when necessary instead of a just-in-case schedule. This savings in operations cost will pay for the real-time monitoring system in short order.

Multiple time zones? No problem.

At times you may have data being called in from sites located in different time zones. That's no problem when you use Telog RTUs and Enterprise software. The data from each site will be time-stamped with the correct time for its time zone. In addition, all Telog RTUs have their internal clocks synchronized with the Enterprise server's clock so you can be confident in the time based accuracy of all your Enterprise data.

Data Collection

All Remote Data Within Reach



Ground Water

Install Telog recorders permanently or temporarily for ground and surface level monitoring of aquifers, reservoirs, lakes and rivers. Flood warning alerts can be sent via Enterprise's alarm messaging capabilities.

Water Quality

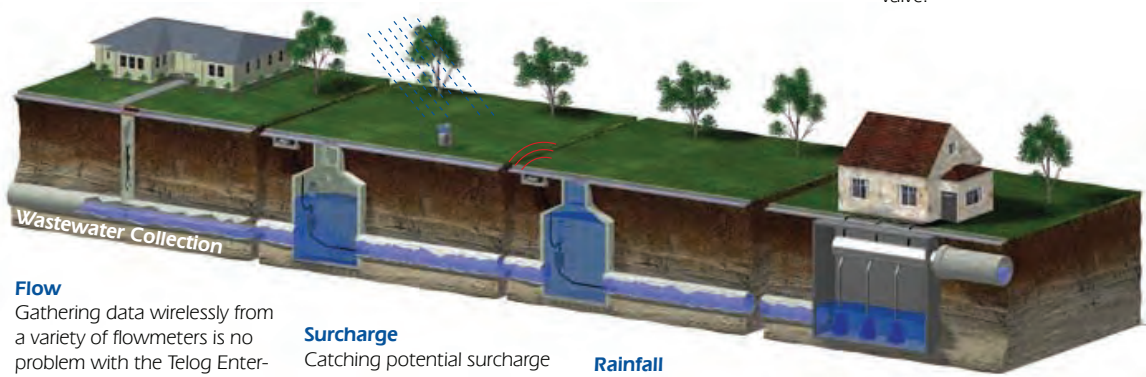
Wirelessly monitoring water quality is easier with Telog. Use Telog's sensor or interface directly with your water quality instrument. Rest easy knowing that with Telog you will have access to real-time data so you can receive alarm notification if needed. All data is stored so you can create accurate reports using high quality data.

Tank Level

Monitor tank levels in areas where traditional phone lines do not exist or are too costly. Wireless data acquisition immediately detects and reports high or low tank levels. Add the optional multi-probe temperature sensor to monitor tank temperature gradients.

System Pressure Monitoring

Use Telog RTUs to monitor system pressure and alert you via the alarm when there is a problem. When monitoring PRVs, differential pressure and "valve open position" may be combined in an algorithm to compute flow through the valve.



Flow

Gathering data wirelessly from a variety of flowmeters is no problem with the Telog Enterprise system. Telog RTUs connect directly to several popular flowmeters, seamlessly and flawlessly so you can choose the flowmeter you want knowing that all remote data will be accurate and available on your desktop 24/7/365. View data real-time or store it for future analysis using Telogers Enterprise software.

Surcharge

Catching potential surcharge events before they happen is crucial. With Telog you can collect data from popular flowmeters or Telog provided level sensors in sanitary or combined sewers. Alarms are sent to your desktop via email or cell phone via text message so you can respond immediately to actual or potential surcharge events. Telog's battery powered recorder uses a burial antenna to transmit data wirelessly back to your server. With Telogers Enterprise software you can view data real-time or store it for future analysis.

Rainfall

Telog recorders directly interface tipping bucket type rain gauges. Very little energy is required so a Telog recorder with a wireless modem can operate on battery power for extended time periods without maintenance. Forward your data on a schedule or more frequently during rain events. This is all done remotely and wirelessly bringing all your data to your desktop with Telogers Enterprise software.

Lift Station

Lift station monitoring with the Telogers Enterprise system provides the operator with information on sump level, pump run-times, flow and energy consumption. Additionally, Enterprise provides an algorithm to compute pump rates of each pump and flow through the station using only the pump on/off run time and wet well geometry.

Data Transfer

Frequent, Fast and Affordable

Telog R-3000 RTUs can transfer your data over any modern communications system. Use one of these solutions or a combination, to maximize your investment in the equipment already in the field.

Packet Switched (1xRTT) Cellular Technology

You won't need to hard-wire these units to connect them to phone lines—and you won't need dedicated telephone numbers for each unit. Your cost savings begin on the first day of your Telog RTU service.

Dial-up Telephone Lines

Use the technology you have in place, and dial into Telog RTUs to download your data when you need it. The information enters the Telogers Enterprise System through a conventional modem.

Ethernet

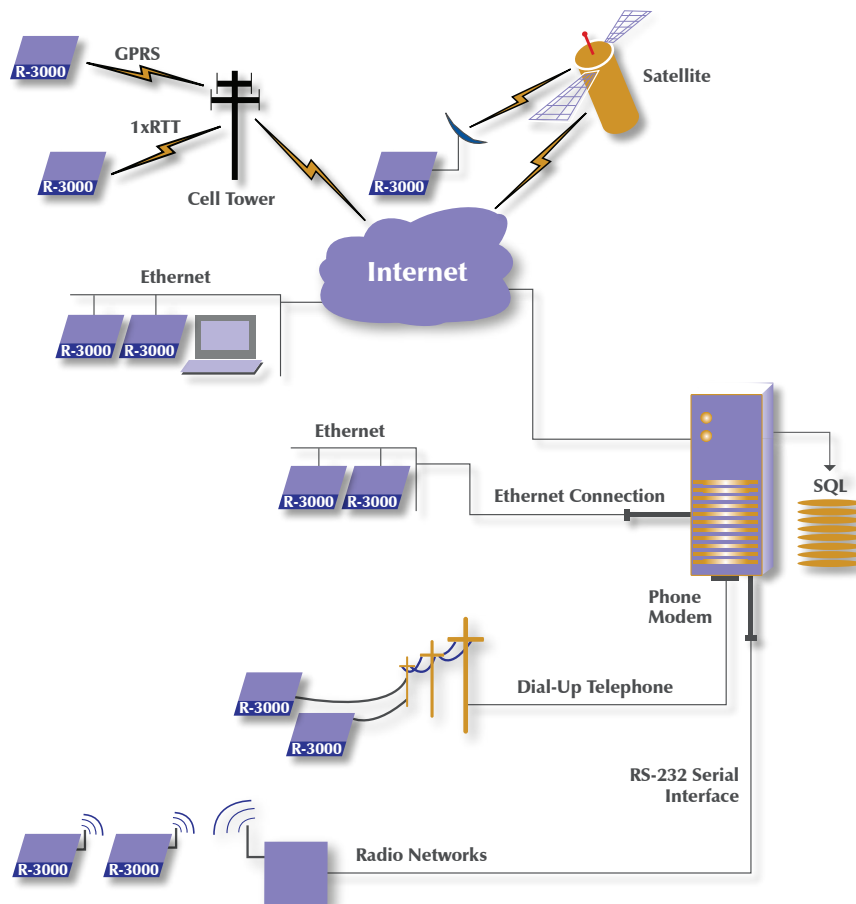
The Telog R-3000 RTUs can become part of your computer system, using hard-wired Ethernet cables to transmit data.

Satellite

For areas too far from cellular service to use the switch packet protocols, Telog RTUs can be configured to send data to Telogers Enterprise using satellite telephone technology.

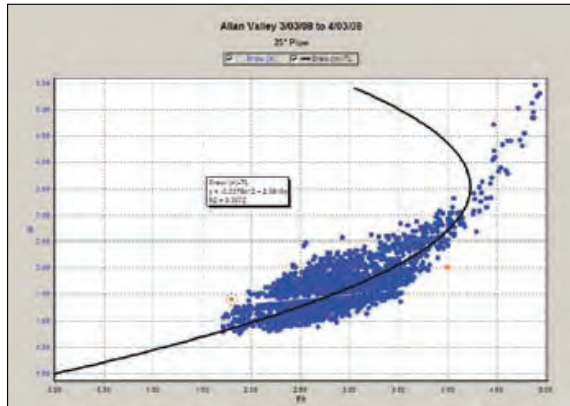
Radio Network

Some municipalities have FCC-licensed radio networks already in place for the remote transmission of data. Telog RTUs can work with your existing network, allowing you to make the move to Telogers Enterprise immediately as part of a longer term update of your legacy system.



Manage Data

Your System. Your Data. Your Way.



Once the data arrives from the field, Telogers Enterprise gets to work to deliver the information you need to keep your sewer systems clear, your water flowing and your gas line pressures at optimum.

Easy-to-use SQL Database

Telogers Enterprise is easy to use because of its Microsoft SQL server infrastructure. Enterprise creates your database schema automatically—you don't need any specialized knowledge. The structure will already be in place once your installation is complete, so you can begin downloading data on the very first day.

Powerful Calculation Engine

The calculation engine runs constantly in the background of Telogers Enterprise, making it possible to calculate flow measurement based on a number of different parameter combinations:

- Velocity, level and site parameters
- Level, Manning coefficient and site information
- Multi-site flows, such as Virtual Sites and NetFlows
- Edits produced by the user

Data Editing Capability

Multiple tools within Telogers Enterprise identify and control data quality problems, finding data gaps and allowing the analyst to fill in missing values.

Telogers Enterprise Client allows for this data repair without changing the original data, by making copies of the raw data and implementing the changes within the copies. Your data integrity remains intact, while the corrected data provides you with more usable information.

Comprehensive Report Generator

Use easy report templates.

Look at data from many locations at the same time, using the simple report templates supplied by Enterprise. You can easily create one new report after another, reducing the time spent on report generation—while allowing you to apply your expertise to viewing and examining data.

Compare time spans.

See how today's flow looks in comparison to the optimal stored in the Enterprise database. You'll never be in the dark about even the slightest changes from the ideal state to an abnormal state.

Compare the data of your choice.

Using Enterprise, you can compare specific locations and multiple sites to find abnormalities and issues before they become problems.

See the big picture.

You can choose to compress your data to daily, weekly, monthly, or whatever amount of time that's best for your operation. Data compression allows you to see large scale trends and overall system status.

Collect and report billing information automatically.

It's easy to gather the data you need for billing your customers because Enterprise will automatically aggregate data such as total monthly flow for each customer.

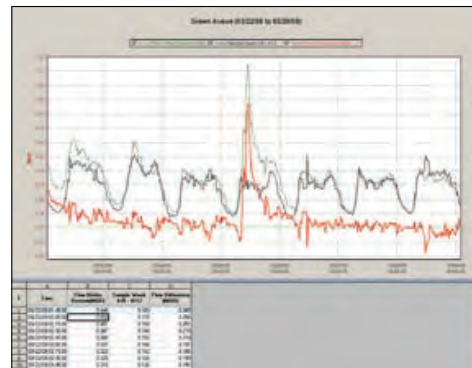
A Real-time Operations Tool

Plan your maintenance day around real data.

Using the Telog Web Module (TWM), you can make site data available to your field personnel through a password-protected web site. Your field teams can view site-specific information about battery life, data gaps and flow issues, and plan their maintenance stops based on real-time information.

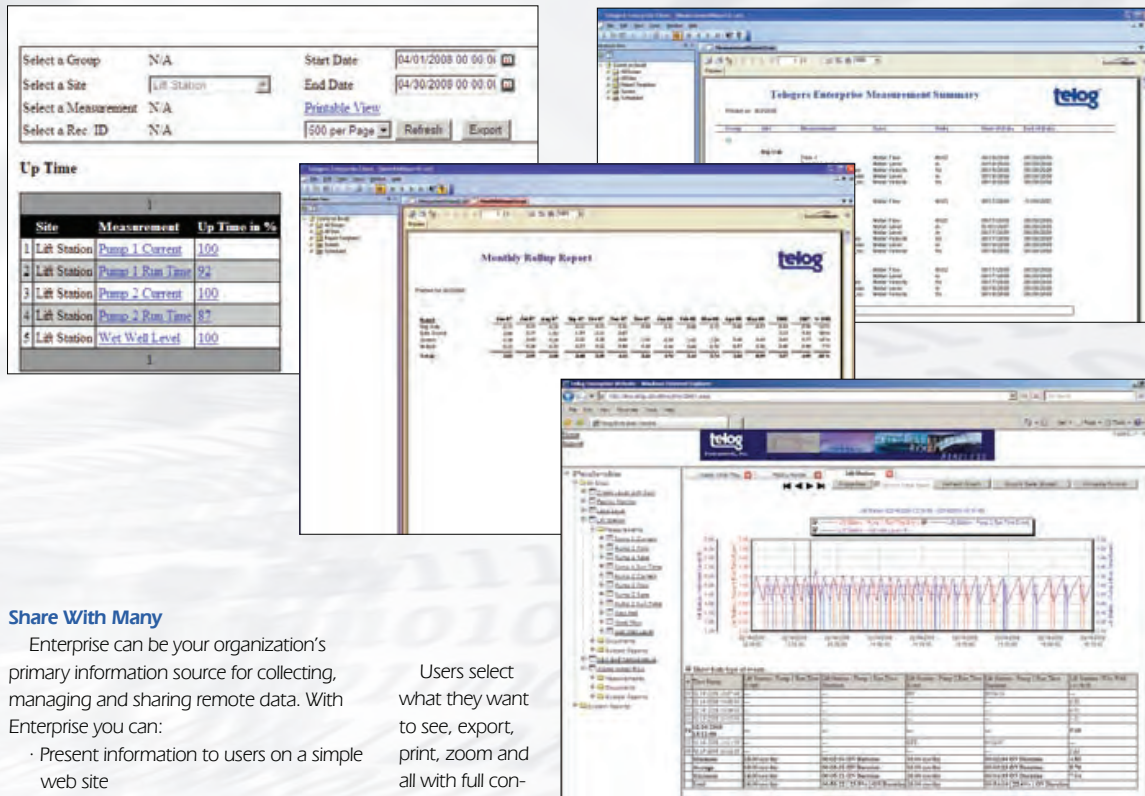
Immediate problem notification.

Receive alert and alarm messages on your cell phone, pager or via email as soon as the event trigger happens.



Data Sharing

Anytime, From Anywhere



Share With Many

Enterprise can be your organization's primary information source for collecting, managing and sharing remote data. With Enterprise you can:

- Present information to users on a simple web site
- Generate comprehensive scheduled reports
- Distribute real-time alarms to field crews and system operators

A key feature of Enterprise is the ability to source data to other corporate software applications such as SCADA/HMI, Billing, Modeling, GIS, and Historians that have a need for remotely measured data or alarms.

Web Site Viewing

Thanks to the Telog Web Module (TWM), up-to-date, accurate information is available for viewing throughout your organization using a computer with Internet access and a common web browser.

You choose the data to be made available for viewing. This way sensitive data or data under analysis will stay protected and safe from viewing. All access to your data is, of course, password protected.

Users select what they want to see, export, print, zoom and all with full confidence that the data displayed on the web carries over the properties stored in Enterprise, so all point correlations are based on correct data.

SCADA/HMI Compatibility

SCADA plus Enterprise is the ideal partnership for system reliability, scalability, flexibility and cost. Enterprise enhances SCADA functionality at your process plant by including real-time data and alarms from remote sites outside your plant.

A variety of data exchange protocols are supported by Enterprise including SQL queries, OPC, FTP server and others. Because data can be polled by or pushed to your server, the SCADA/HMI system is able to make decisions and report on what is happening on the plant floor as well as your distribution or collection system.

Model Calibrations

System wide models of your distribution or collection system are critical tools for predicting operations during wet weather events as well as planning system growth. With Enterprise you have an automatic source of information (e.g. site flows, pressures, levels, rainfall), for modeling applications to calibrate with real data and confirm the model's assumptions.

Traditionally, models have been run off-line using historic data. With real time remote data, your models will be run in real time and will provide you with unprecedented information. You will be able to view the effects of a wet weather event on river levels, wastewater collection and storm water systems as weather events occur with real-time forecasting and warnings.

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TAB 10

**PROJECT APPROACH AND
PROCESSING DATA**

PROJECT APPROACH AND PROCESSING DATA

PROJECT UNDERSTANDING

The City of Austin is seeking the services of a qualified flow monitoring services provider to provide and install flow and rainfall monitoring equipment that will collect system performance data to support ongoing inflow and infiltration investigations and hydraulic model calibrations.

The installed flow monitoring network offers technologies to provide warnings when system conditions may result in overflow conditions and will have the capability to collect accurate data under all conditions including major wet-weather events.

APPROACH AND WORK PLAN

The project approach presented on the following pages outlines the services that RJN will provide for this important program. **RJN is a full-service flow monitoring specialist; our team can address all of the scope items identified in the City's RFP for this program.**

Leveraging 35 years of experience with municipal flow monitoring programs, RJN has developed fundamental principals that are implemented to ensure a successful flow monitoring program.

RJN Keys to an Effective Flow Monitoring Program

1. Site assessment for hydraulic suitability to equipment and data collection
2. Equipment installations according to the manufacturers' specifications
3. Accurate geometrical measurements of monitored cross-sections and structures
4. Routine in-situ hydraulic equipment verifications/calibrations
5. Timely equipment service and maintenance
6. Skilled data processing and quality analysis
7. Data handling, management, and timely delivery of data

RJN data collection standards ensure that captured flow and rainfall data is accurate and defensible, by:

- Evaluating repeatable depth-velocity relationships over time to identify long-term relationships and outliers
- Ensuring the data is consistent with manual confirmations (verifications)
- Ensuring the data is consistent with upstream and downstream sites (flow balancing)
- Confirming the data is consistent with design curves

RJN engineering staff has a thorough understanding of the theory of operation for all of the metering equipment available in the market today. We intend to install ADS Triton+ meters for this program.

- RJN has 183 ADS Triton meters in inventory and has used Triton meters for a number of recent long-term metering programs including DC Water (170 meters) as well as the City's Crosstown project
- RJN has managed 591 Triton meter sites for 34 clients over the past three years providing flow data to support capital planning, consent decree program requirements, and provide billing data
- The ADS ECHO meter is a new technology that provides an effective monitoring system for overflow detection. It is designed for ultra low power consumption and overflow prevention providing early warning of level increase to surcharge detection. Installed at the top of the manhole, it measures flow depths up to 20 feet (6.1m) from the face of the sensor.

MANAGING THE PROGRAM/DATA

RJN operating principles for this program will involve:

- Communicating regularly with City staff
- Assigning and coordinating field crews and data analysts to ensure the metering network is fully operational and collecting accurate data
- Maintaining and monitoring the equipment inventory
- Routinely conducting timely QA/QC validations

PROGRESSIVE TOOLS RESULT IN PROACTIVE O&M



Telog Enterprise Client is the RJN data management platform.

KEY APPLICATION ELEMENTS

- MS SQL database platform
- Data editing and analysis tools
- Computed measurements
- GIS Interface
- Customizable alarm and alert management
- Comprehensive maintenance logging/audit trail
- Secure web-based user access

RJN PROJECT MANAGER (RPM)

RPM is a robust enterprise software system designed to manage large volumes of flow and project management data. RPM captures and integrates field inspection data, weaving it with the Enterprise Client flow data management and editing tool—the RJN data manager for “raw” and edited flow data. Key features include:

- Project Management** (Red): Jobs, Pricing, Chemicals, Core Schedule, Production, Vial Summary
- Field** (Green): Field Forms, Log, Confirmed Jobs, Rigs, Traffic Control
- Data Analysis** (Purple): Site Reports, Daily Reports, Volumes, Oil Logs, Work Orders, Schedules, Field Service (F)
- Maintenance** (Blue): Inventory, Production, Repairs, Inquiries, Scheduling, Depreciation
- Lost and Found** (Orange): Rental Production, Site Details, Field Inventory, Core Schedule, Reports
- Rental Production** (Yellow): Rental Production, Site Details, Field Inventory, Core Schedule, Reports



- **Work Order-Based Maintenance Regime**—RPM
Work Order tools drive preventive and corrective maintenance actions and documentation
 - *Data analysts* review alarming notifications, hydrographs and scattergraphs to assess equipment and data reliability. A Work Order is created documenting issues.
 - *Project managers/field managers* review issued Work Orders and utilize the RPM scheduling features to dispatch field crews
 - *Field crews* receive a prioritized schedule of Work Orders and visit sites (identified through GPS coordinates) to resolve issues
 - *Work Order logs* document all maintenance actions and resolutions
- **Equipment Inventory and Warehousing**—RPM
hosts a suite of tools to manage and track RJN equipment and parts inventory. This feature integrates with the Work Order application to provide a comprehensive history for each meter, gauge, and sensor.

- **Online Reporting**—The RJN client portal provides web-based access to maintenance, equipment calibration/verification, installation logs, and analysis results
- **Rainfall-Derived I/I (RDII) Analysis**—RPM refines methods for determining excess flow traces in a hydrograph including:
 - Dry-Weather Flow Analysis
 - Development of Diurnal Curves
 - Flow vs. Rainfall Regression Analysis
 - Scattergraphs plotted using Manning’s, Colebrook-White, Polynomial Regression, and Iso-Q overlays
 - Volumetric I/I Analysis

Data collection, data management, and reporting features are fully customizable and data can be easily integrated with client GIS, CMMS, and modeling platforms.

GATAR MOBILE DATA COLLECTORS

The RJN GATAR is a customizable IOS/Android compatible tablet designed to expedite accurate data collection. The tablets are equipped with GPS, WiFi, and cellular communication technologies. During site investigations, condition inspections, and equipment maintenance visits, attribute and field data is recorded using custom views designed to validate data entry and guide Work Order documentation and inspection activities. View scripts ensure that “all” required data elements are captured efficiently and accurately. All collected field data is transmitted to and managed through RPM.



The GATAR was developed under the premise that good field data has a positive cumulative effect throughout the life of the project. Good data is facilitated by our field form platform in two ways:

1. **Form validation and completion checking**—Forms (field data) cannot be submitted without all required fields being completed with “reasonable” answers. Each form is designed using a “Question and

Answer” format to ensure a complete and accurate inspection process.

2. **Avoiding disconnections between related data**

—The GATAR provides data entry capabilities for all types of data (i.e., numbers, text, photos, GPS coordinates, video) and eliminates the need to coordinate data captured from external devices (e.g., cameras or GPS receivers). Integrated data inputs include:

- Photographs
- Sketches
- GPS (taken from the devices)
- Barcode Scans
- Signatures

As forms are completed, they are synced with the RJN Project Manager (RPM) system either through a cellular or WiFi connection.

ROUTINE EQUIPMENT VERIFICATIONS ENSURE ACCURACY

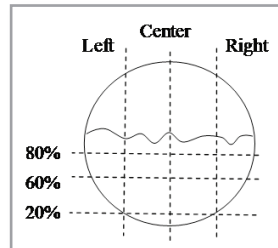
Sewer system flow levels are calculated using two variables:

- Velocity—speed of flow
- Area—based on pipe shape and depth of flow

Measuring depth of flow (coverage in the area) is critical to the accuracy of flow data. **The area of a pipe is deduced from the measurements taken during the initial site investigations. Silt levels are also recorded as the level of silt changes the area of the pipe.**

In-site verifications measurements—depth, velocity, and silt measurements—are taken at installation and then routinely during preventive and correction maintenance visits. All verifications points are recorded using the GATAR data collectors.

Velocity Profiles—A velocity profile is obtained by measuring the instantaneous velocity at pre-defined depths; measurements are integrated to derive an average for comparison to the meters' calculated average velocity.



Measuring Silt Levels—

Varying silt levels will impact the cross-sectional area, which is used to calculate the flow rate. Silt levels are recorded during the site visit for each verification. When silt is introduced or “washed” away, the cross-sectional area will change, supporting the need for routine site measurements.

For severe and highly variable silt levels, a “silt topo” will be obtained (essentially a grid of measurements between the upstream measured cross-section through the length of the manhole).

EQUIPMENT INSTALLATION

SITE INVESTIGATIONS

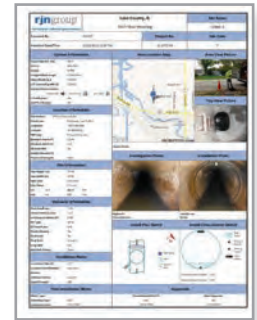
At the beginning of the project, each flow monitoring site will be visited and a routine RJN site inspection will be performed to confirm pipe measurements and site hydraulics. Manholes will be descended following OSHA confined space entry procedures and adjacent manholes will be investigated, as necessary, to ensure the best possible monitoring locations are identified and to verify that system maps and direction of flows are accurate. Data collected during site investigations includes:



- Site hydraulics/velocity range/depth range
- Pipe dimensions
- Manhole/chamber and overflow pipe configuration
- Pipe-to-manhole hydraulic transition
- Surcharging

- Site safety and accessibility
- Silt or debris levels
- Downstream conditions
- Acoustic noise
- Wireless signal strength

RJN GATAR units are used during meter site investigations and installations to record site-specific data and include photos documenting conditions. Images record conditions of the area, down manhole, upstream and downstream pipe. Site attributes are keyed to the site GPS coordinates.



RJN Standard Site Report

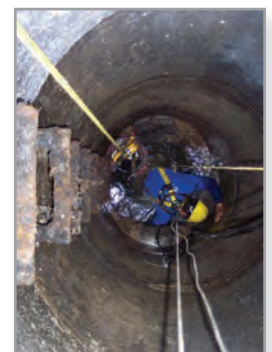
All site attribute data is maintained in RPM and site reports are produced and also stored in RPM. Any concerns about hydraulic suitability are noted in the site reports and recommendations.

EQUIPMENT INSTALLATION PROCESSES

METER INSTALLATION

All flow metering equipment will be installed according to the manufacturers' recommendations by trained field technicians. The flow meters will be mounted inside the manhole.

- Sensors are typically installed on a thin metal ring for smaller pipe applications
 - For larger pipe installations (over 42 inches) and in non-circular pipes, the sensing equipment is generally installed on a flange or partial band
 - The ECHO monitor installs near the top of the manhole with a mounting bar and unit that contain integral bubble levels to facilitate proper installation
- All cabling is securely fastened to the structure wall, and the monitoring equipment is positioned to account for debris and silt as necessary



- The water-tight data logger is positioned at the top of the manhole to allow for easy access and to minimize the potential for damage and data loss in the event of surcharge conditions
- Prior to leaving the site, each flow monitor will be configured and activated at the site. All equipment will undergo a series of diagnostic tests and verifications to validate and confirm the meter data to ensure that the installed monitoring network is fully functional.

For some larger or full flowing sites, installations may need to occur at night when flow levels are at a minimum. **The field verification and validation record taken upon meter installation will be included with the Site Report submitted after installation.**

RAIN GAUGE INSTALLATION

Rain gauge equipment will be installed in accordance with manufacturer recommendations and standard RJN installation procedures. Proven processes ensure that the installation is secure and the equipment is protected minimizing the potential for downtime. Specially constructed mounting configurations are used to facilitate leveling of the tipping bucket, and reduce the potential for dislocation from tipping over or separation of components during storm events.



TELEMETRY INSTALLATION

As standard procedure, all meters are placed on telemetry, providing a means for remote wireless flow meter data collection. Collected flow and rainfall data is transmitted and managed using the Telog Enterprise Client data management platform. This tool is capable of individual, group, or global



changes to the data collection intervals including collection after each measurement. It also enforces clock synchronization for all field Remote Telemetry Units (RTUs), thus ensuring time interval integrity for all collected data.

Telemetry will be established at each site using a “whip it” style antenna. For paved surfaces, a narrow saw cut may be required to insert the antenna. The incision will be filled with a thin layer of epoxy, grout, or asphalt. In cases where the “whip it” style antenna may not be feasible, RJN has installed specialized antenna equipment to ensure functional telemetry is installed at the site. Any disturbed areas resulting from the wireless telemetry installations will be repaired upon removal of telemetry equipment.



IN-SITU VERIFICATIONS

A complete in-situ depth and velocity verifications, in accordance with RJN standard procedures, will be performed and documented as part of the investigation record.

DATA COLLECTION

All flow meters and rain gauges will be set to record data at five-minute intervals. The raw data will be collected via telemetry and transmitted to Telog Enterprise. Data analysts and the O&M field crews will have immediate access to collected data. Each monitor will be associated with a rain gauge so that flow patterns at each site can be visually reviewed relative to the rain data at the associated site during rainfall events.

DAILY DATA COLLECTION

Flow monitoring and rain gauge site data is transmitted through telemetry to the Enterprise server. Depth and velocity data is collected by the metering equipment and rain gauge equipment and includes the following data for each site.

- Collection Status
- Collection Date and Time
- Monitor Status
- Battery Strength
- Percent Good Data

DATA VERIFICATION

At equipment installation, RJN team crews will calibrate metering equipment according to manufacturer specifications and will capture manual depth, velocity, and silt measurements to ensure the equipment is recording accurate measurements.

Experienced RJN data analysts will review the captured flow data to identify data gaps, anomalies, and meter performance issues. At equipment installation, the collected verification measurements will be applied to initially set the depth and velocity range and to generate flow rates using the Continuity equation.

Data analysts will use various analytical tools, such as hydrographs, scattergraphs, and flow balancing methods to conduct ongoing verifications to ensure the accuracy and precision of the equipment. Data will be initially reviewed for trace consistency. Specific attention will focus on detecting sensor drift so that it can be detected early and corrected. Utilizing redundant ultrasonic and pressure depth sensors minimizes the potential for pressure sensor drift affecting finalized data.

Hydrographs will be reviewed to detect sensor drift relative to the

expected flows. Where sensor drift is suspected, work orders are generated within 24 hours to schedule a proactive independent flow verification and maintenance service.

As a standard practice, RJN will review flow monitoring and rainfall data at least twice a week during the “settling in” period. During the “settling in” period, crews will visit sites to obtain necessary verifications and make efforts to prevent sensor failure, minimize equipment

maintenance issues, avoid excessive siltation, and configure the monitoring equipment to capture hydraulic variations or anomalies. After the “settling in” period, RJN standard review processes will drive preventive maintenance efforts including requirements for verification measurements.

Any data issues or equipment service needs will be documented and conveyed to the field service crews through the RPM Work Order tools within 24 hours of identification of the problem.

Missing Calls—Enterprise is configured to conduct maintenance calls to acquire any missing data that failed to transmit. In the event that the telemetry is not functional or in need of repair, routine data collection will be made by crew visitation under the RJN corrective maintenance protocols.

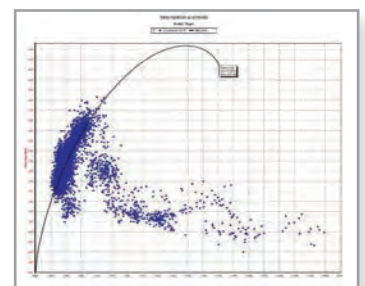
NETWORK O&M PROCESSES

Preventive and corrective maintenance is performed on site by experienced RJN field technicians. RJN data analysts routinely verify data for maintenance problems, unique hydraulic conditions, and data anomalies such as bottlenecks, surcharging, and suspected overflows. Scattergraphs of depth vs. velocity are reviewed to determine whether distinctive patterns affecting data quality can be identified.

RJN field crew are supported by the RJN Flow Meter Lab staff for non-routine maintenance requirements. If a meter is not functioning and cannot be repaired on

site, it will be replaced and sent to the central RJN Flow Meter Lab for further troubleshooting and repair.

All preventive and corrective maintenance is scheduled and documented using the RPM Work Order function.



SYSTEM STATUS MONITORING

RJN System Status Monitoring (SSM) drives preventive and corrective maintenance efforts. These processes use stringent data review and quality control measures (QC) coupled with automated alarming and reporting capabilities of Enterprise Client and RPM. SSM is managed and directed by the RJN Data Group working closely with the Project/Field Manager and field crews.

AUTOMATING ALARMS/NOTIFICATIONS

Equipment event alarms are a key component of SSM processes. At the beginning of the metering program, the Enterprise Client will be configured for alarms and alerts using automated queries/parameters to monitor equipment, communications, and data captures. Routine conditions trigger notifications to project data analysts in near real time for battery voltages, data acquisition automating, sensors, and telemetry issues. Examples of types of alarms include:

RJN's proactive SSM program has resulted in a 4-year collective uptime of better than 98% on all flow monitoring projects.

- **Battery Alarm**—Auto notify when voltages are below minimum thresholds
- **Battery Drop**—Last 7 days of battery voltages to evaluate drawdown
- **Daily Collect Log**—Acquisition of full daily data sets with automated notice to the analyst
- **Sensor Surveillance**
 - If depth or velocity fails to record during call to server
 - If depth or velocity is flat-lined or reading < 0
- **Telemetry Settings**—Channel configuration, ADS serial number
- **Errors**—Frequency and call duration that the logger has called into server
- **Surcharge**—Site name, date, and depth value when site surcharges

SSM processes are elevated to entire system checks whenever significant **wet-weather events** are forecast. Precipitation alarms for rain gauges can be set for routine notification when a set amount (i.e., one inch) of rainfall is accumulated during a wet-weather event.

ROUTINE MAINTENANCE PROTOCOLS

After the settling in period, standard RJN procedures drive ongoing preventive maintenance efforts including requirements for in-situ verification measurements. This process, the FACTS protocol, establishes maintenance schedules according to the following criteria.

FACTS Protocol Criteria

F	Flow rates are consistent between Qmanning and Qcontinuity and the flow rates balance within the network.
A	All data is being acquired—minimal downtime.
C	Calibrations/verifications are on schedule.
T	Telemetered sites are delivering continuous data, daily.
S	Service requirements are minimal.

Each criteria is given a value of 1 or 0. The preventive maintenance cycle (visit frequency) is established based on the cumulative FACTS rating.

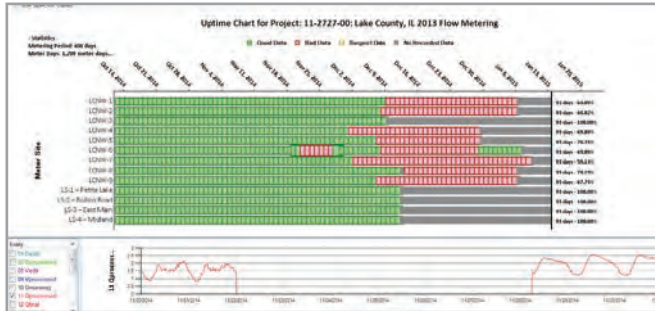
- Data reviews for meter sites with higher FACTS ratings occur more frequently; ALL meter site data is reviewed, at a minimum, once a week unless alarm conditions or anomalies occur
- Preventive meter equipment visits are based on the FACTS score. Alarm and alert actions direct corrective maintenance measures.

FACTS Protocol Maintenance Regime

FACTS Score	Equipment Maintenance Frequency (Days)	Data Review Schedule (per Week)
1	7	3
2	14	2
3	30	1
4	45	1
5	60	1

MONITORING UPTIME

The target for each and every monitor is a minimum 95% uptime per month, per installed unit. Monitor uptime will be tracked daily and reported monthly.



PREVENTIVE MAINTENANCE PRACTICES

Preventive maintenance addresses predictable, routine maintenance tasks. **Preventive maintenance is scheduled as an RPM Work Order.**

Maintenance inspections are scheduled based on the FACTS protocol.

In-situ verification measurements are recorded and field technicians routinely check band tightness, cable tie-ups, canister mounting, and inspect all installed hardware to ensure the site installation remains neat, secure, fully functional, and ready for both normal and severe weather monitoring and data collection.

Prior to leaving the site, the technicians will confirm that all cabling is securely fastened to the structure wall and the monitoring equipment is positioned to account for debris and silt as necessary. They will also ensure that water-tight loggers are positioned to allow easy access and to minimize the potential for damage and data loss in the event of surcharge conditions.

Field crews dispatched for preventive maintenance are outfitted with sufficient equipment and tools to

Preventative Maintenance

- In-Situ Calibrations
- Battery Swaps
- Sensor Cleaning
- Equipment Installation Inspections



perform in-situ diagnostics and correct any operation and maintenance (O&M) issues identified while on site. Any identified maintenance issues will be corrected and recorded as part of the Work Order documentation.

MEASURING SYSTEM PERFORMANCE DURING WET-WEATHER EVENTS

Standard RJN SSM and data analysis will correlate rainfall data with the corresponding flow monitoring data to ensure proper operation of the flow monitoring

network. Data analysts will determine where the rain events occurred (and if any rain gauges installed under the contract) have exceeded a one-inch threshold. Under these conditions field crews will be dispatched to the appropriate area to ensure the system is operating correctly.



CORRECTIVE MAINTENANCE PRACTICES

Meter status, battery power issues, communication issues, and data anomalies (level and velocity) will prompt corrective maintenance measures. Equipment

issues are typically identified through Enterprise alarming notifications. Data anomalies are detected through daily SSM processes. **When corrective maintenance is required, a data analyst will create a RPM Work Order documenting the identified issue and recommended corrective action.** Field crews will be dispatched within 24 hours of identification.

Upon arrival at the problem site, the field crew will diagnose the problem and contact the assigned data analyst to verify and/or expand on the Work Order's designated corrective action. The data analyst is in communication with the field crew while they are on site. This ensures that full restoration of monitoring, data collection, and telemetry can be accomplished

Corrective Maintenance

- Battery or Equipment Failure
- Communication Failure
- Data Anomalies

during the site visit, even if this requires replacement of installed equipment.

HIGH FLOW DETECTION

Depth sensors will be used to detect high flow conditions. Enterprise Client alarms and alerts will be established for “high” and “high-high” depth values, which will drive the high flow notification process.

All surcharge situations identified during SSM or during site visits will be documented and will be reported. During each meter service, Work Order logs will also document evidence of surcharge conditions.

The ECHO meter, installed on a mounting bar near the top of the manhole, uses ultrasonic technology to record the distance from the face of the sensor to the surface of the flow. The depth of flow is easily calculated by subtracting this measurement from the distance to the pipe invert. Using as-built information provided by the City, the depth of flow will be used to calculate the flow rate using the Manning’s equation.



EQUIPMENT INVENTORY/MAINTENANCE

RJN owns 86 Triton+ meters and 97 Triton meters. The RJN meter inventory is managed and maintained by our centralized Flow Meter Lab group. This group is managed by Jon Kerr and is composed of staff dedicated to maintaining all RJN flow metering equipment. A complete inventory of spare parts is maintained by the Lab team to support continuing equipment maintenance.

STRINGENT EQUIPMENT CONTROLS

RJN has strict inventory control procedures to ensure that all equipment is documented and tracked for maintenance. Once an RPM Work Order involving equipment maintenance is closed, the Work Order data communicated to RPM will automatically be recorded in

a maintenance log in the equipment inventory control databases to accurately reflect installed equipment and service requirements and ensure that a spare parts inventory is available.

Inventory is tracked through a strict check-in/check-out procedure;

all installed equipment is documented in the equipment inventory database, and all installed equipment exchanges will be tightly monitored through Work Order documentation and close-out procedures.



DATA ANALYSIS

The primary goal of the data review and analysis process is to ensure accurate and reliable data and maintain equipment uptime. The RJN Data Group is dedicated to flow data analysis and is responsible for collecting, consolidating, processing, and performing a cursory review for data continuity and quality after each data upload based on FACTS protocol standards.

Data verification analysis focuses on identifying:

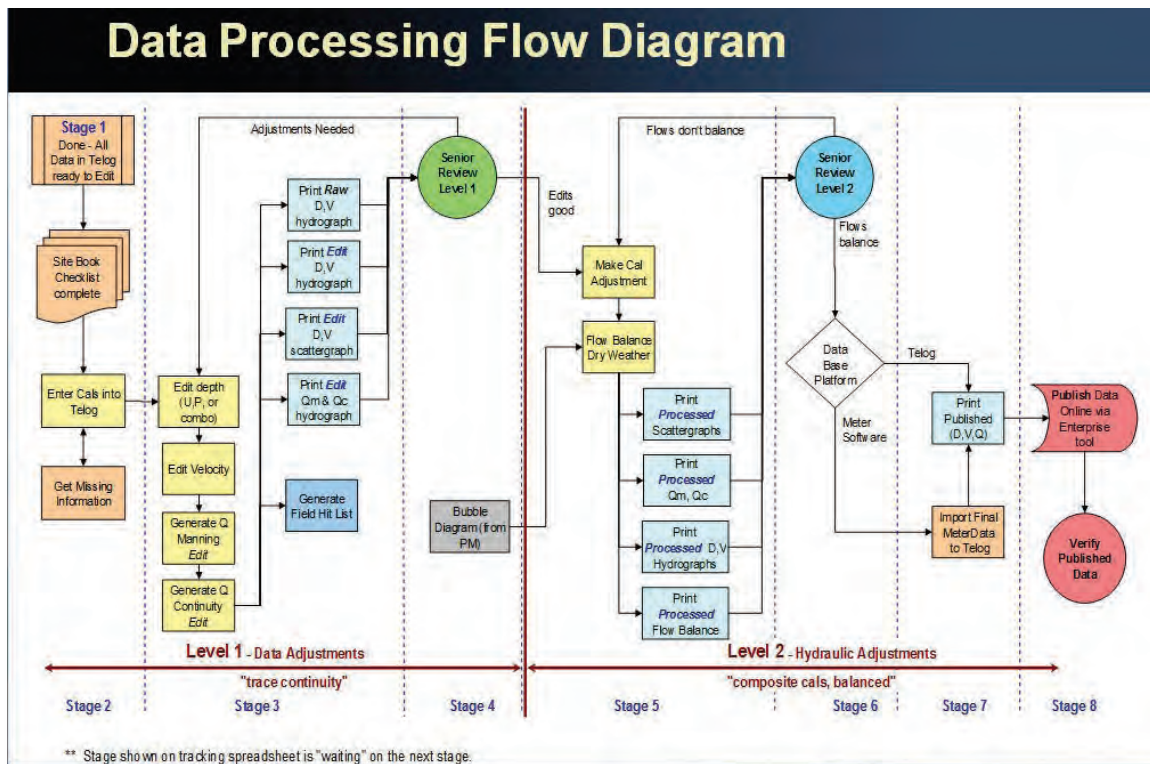
- Data gaps and hydraulic anomalies
- Overall meter performance
- Equipment service needs
- Conversion of raw flow data into final edited data

RJN STANDARD OPERATING PROCEDURES

The fundamental RJN guiding philosophy is that no correction or adjustment factor can be applied to the data unless there is a verifiable field activity, verification/calibration record, or recognized hydraulic principal to support it. In other words, no guessing.

A data analyst is assigned to a specific set of meters for the duration of the metering period.

- Data will be corrected and adjusted according to verification measurements and flow balances among connecting sites



- Data will be processed and edited in accordance with field confirmations to produce final data sets for each site

Various analytical tools will be used to verify the accuracy and precision of the data. Diurnal patterns and reasonable depths and velocities will be validated and checked for data anomalies or unusual trends that are recognizable. The flow balance between flow meters will be evaluated to ensure that recorded flows at each site are reasonable when compared to flows being recorded at upstream and downstream sites.

All data is stored in Telog Enterprise in its "raw" form without any adjustments. Adjustments and corrections are stored as separate data items and applied to the "raw" data to derive the "final" data.

INDUSTRY-ACCEPTED FLOW CALCULATIONS

Generally, flow rate calculations will be based on the Continuity equation and will be dependent on recorded depths, velocities, silt measurements, and pipe geometry. Data captured by the ECHO meter will utilize as-built information and the ultrasonic depth sensor to calculate flow rates using the Manning's equation.

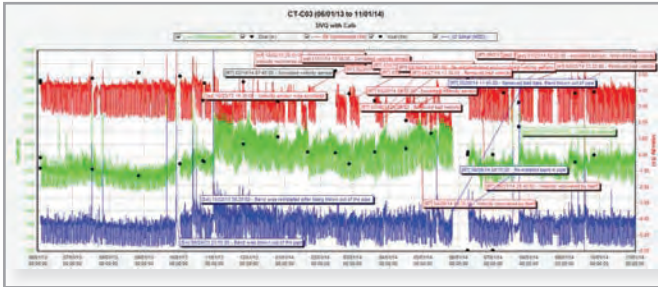
Flow rates can also be calculated or verified using Manning's, Colebrook-White, and Best-Fit curve equations. Representing theoretical flow rate values, these equations are excellent sources for validating the Continuity-generated flow rates and any applied data adjustments.

DATA EDITING PROCESSES

Data editing is the process of applying "corrections" and "adjustments" to the "raw" flow data to derive accurate flow rates. At equipment installation, equipment verifications (measurements) are applied to initially set the depth and velocity range and to generate flow rates using the Continuity equation. Unusual pops, drops, or sensor deviations will be assessed for correction.

- Corrections** include offsets and factors applied to the depth and velocity readings to maintain consistency in the data traces. These edits correct offsets introduced when the sensors are rotated, equipment is replaced, or silt levels have been modified.
- Adjustments** include offsets and factors applied to the depth and velocity traces based on

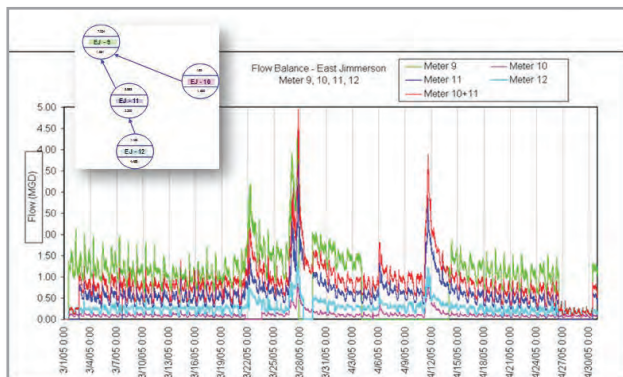
comparisons to the manual verifications. Using manual verifications and flow balancing, the depth and velocity traces will be “adjusted”. Data plots will be generated that include raw data, edited data, and verifications to evaluate and validate the edited data. Manning’s and Continuity equations are also compared to evaluate hydraulic anomalies.



All data will be processed and edited in accordance with the field confirmations to produce final data sets for each site. **Hydraulic verifications and sensor confirmations are necessary to validate the sensor readings, justify data corrections, and establish “adjustment factors” for the depth and velocity traces.**

Using the Telog Enterprise editing features, edits can be made to single data points or a range of data and the entire history, including all dependent measurements, is recomputed automatically.

FLOW BALANCING



Flow balancing is one of the most critical components of the data quality process. The purpose of flow balancing

is to add yet another assurance that the flow meter network is producing reliable, verifiable, and accurate data.

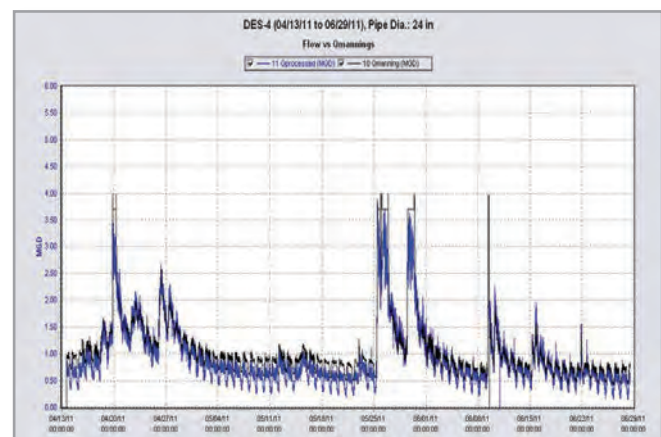
Regardless of any applied corrections and adjustments to the data, the flow rates throughout a flow metering network must conform to the basic principles of the conservation of energy; flow into a node must be equal to flow out of the node. Specifically, the network of meters must each balance as the flow traverses from the top of the system to the bottom.

Each upstream meter (including multiple inputs) should result in equal or less flow than the downstream recipient meter. If not, one of two conditions exist.

- (1) The data is incorrect, or
- (2) Flow is being released between the meters through a bypass, relief line, or possibly an overflow.

Flow balancing involves computing flow quantities for different points in time and analyzing the consistency of downstream readings to upstream readings. Flow rates should balance in dry- and wet-periods, through the full range of flows and for all periods.

When an imbalance occurs, the data must be reanalyzed and adjusted within the margin of available field verifications. Data is never to be adjusted just to “make it fit”, without field verifications to justify it.



Balancing also includes an **analysis using alternative equations** for calculating the flow rate. By comparing the flow rates using the Manning’s equation (theoretical)

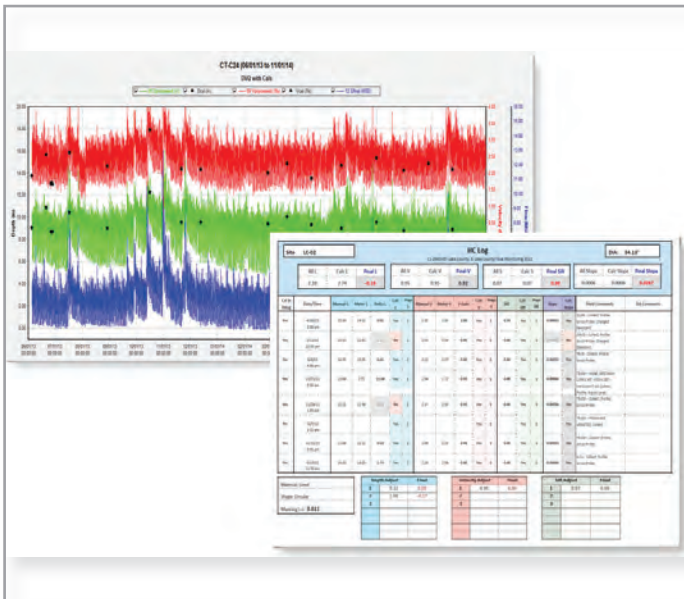
and the Continuity equation (actual), the corrections and adjustments to the data can be validated. Under free-flow conditions, flow rates calculated using the Continuity equation can never exceed Manning. If they do, either the site is influenced by upstream head pressure or the data is not properly adjusted.

FINALIZING THE DATA

Historical hydraulic verifications/calibration measurements, maintained in the RPM Hydraulic Calibration (HC) Log, enable a relative comparison to cull the outliers. Using recorded silt measurements and the HC Log adjustments, composite sensor adjustment factors and silt levels are derived and used to finalize the data. Hydraulic verifications are used throughout the monitoring period to refine “adjustment factors” and to confirm that the sensors are consistently reading within acceptable margins.

DATA TRANSFER/DELIVERY

RJN will enable raw flow data from the ADS Triton flow meter to be automatically posted to the City’s dedicated FTP site on an hourly basis. This will be done through the incorporation of two modules as follows.



RPM DATA CONVERSION MODULE (DCM)

This module enables the remote collection of data from various flow meter brands. Data is collected using the meter’s base configuration and data collection application software and then converted into Telog EDF format. This enables data to be immediately and automatically imported into the Telog Enterprise client.

The RJN Administrator may add or delete flow meter and assign site names as the project dictates. Communication to the meter will remain intact through the meter’s application software allowing alarming, troubleshooting and diagnostic capabilities.

E-AIM3 MODULE

The E-AIM3 is a module that will reside on the City of Austin’s Telog Enterprise server that will automatically import the data from the City’s dedicated FTP site to the City’s Enterprise server on an hourly basis.

RJN will assist the City with the integration of this module at no additional costs to make sure the expected data paths are fully functional.

REPORTING

RJN will capture all data including supporting maintenance and service logs in digital format. It will also allow all project files to be readily available to City staff. Electronic files include information such as investigation site reports, verifications/calibrations, maintenance logs, network flow diagrams, data uptime charts, and status reports. RJN RPM and Enterprise Client provide the basis for all web-based reporting and report deliverables.

DATA WEB PORTAL

The Telog Web Module provides both graphical and numeric reporting tools. Graphical reports allow up to 10 measurements to be displayed on five distinct Y-axes. Graphic displays allow at least a one-year display of data with user selectable compressed intervals that include hourly, daily, and weekly values. Data can be viewed or downloaded by the City staff through password-protected user hierarchy.

MAINTENANCE LOGS

- A Maintenance Activity Log will be maintained based on the Work Order activity and equipment maintenance. It will be submitted in electronic format (pdf) on a weekly basis for the previous week's activities.
 - Site-specific maintenance logs will be maintained as part of the project record, and will be submitted electronically on a monthly basis
- Calibration/Verification Logs will be kept for each flow meter and rain gauge
- The Data Review/Processing Log will track all maintenance performed by the data analysts
 - The data review and processing log will be submitted monthly within 5 business days of posting of final data for the previous month
 - The data processing log will document anomalies, data gaps, and data uptime for the period

All maintenance, verification/calibration, and data review logs will be available immediately upon upload to the project database in each site's Document Folder through the user name and password-protected Enterprise web portal.

PERFORMANCE REPORTS

RJN RPM has a series of performance reports for data quality, data collection, battery voltages, and sensor performance.

FLOW STABILIZATION REPORT

RJN will submit a Flow Stabilization Report to demonstrate that flow monitoring equipment is acquiring accurate and reliable flow data. The Report will be submitted to the City for review and approval within two months of receiving the notice to proceed. The Flow Stabilization Report shall be in an agreed format to include a plot of both the velocity and depth diurnal curve with four verification points.

UPTIME REPORTING

To aid in monthly invoicing, an uptime report is generated by RJN to view percent uptime by monitor for a specific time interval. RPM will generate the report incorporating the equipment maintenance logs.

MONTHLY DELIVERABLES

The monthly deliverables and reporting requirements will be coordinated with the City. These may include identification of issues and resolutions as well as the uptime report.

SAMPLE REPORTS

Reporting samples are provided on the following pages.

MONTHLY FLOW SUMMARY REPORT (By Site)

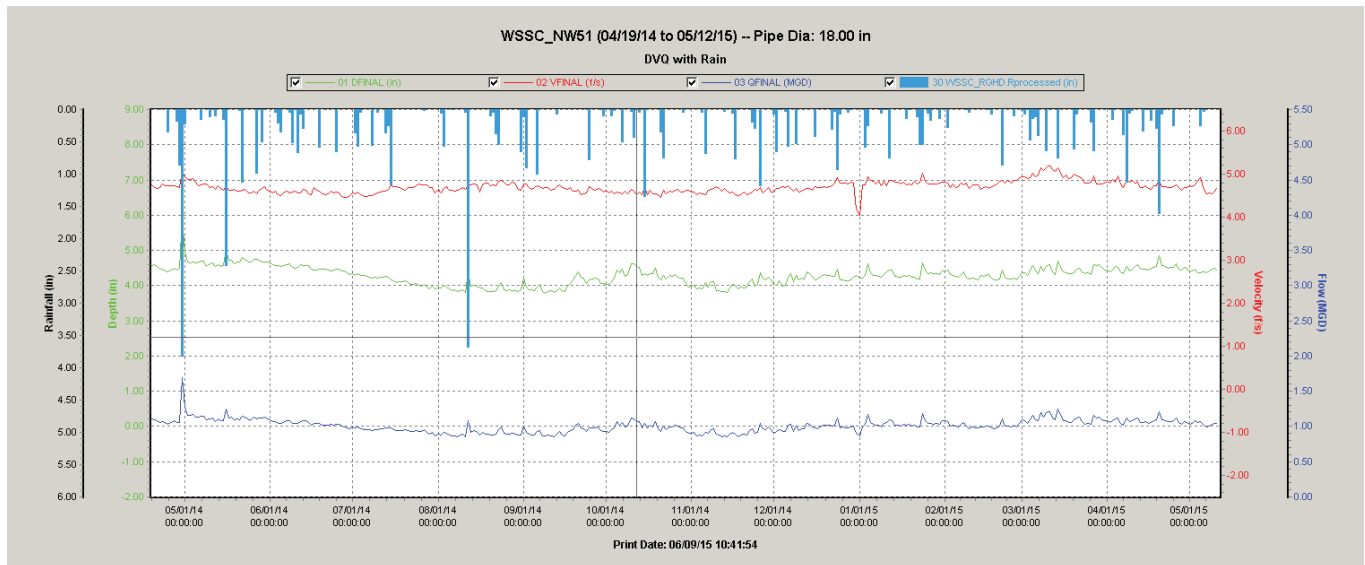
Monthly Flow Report



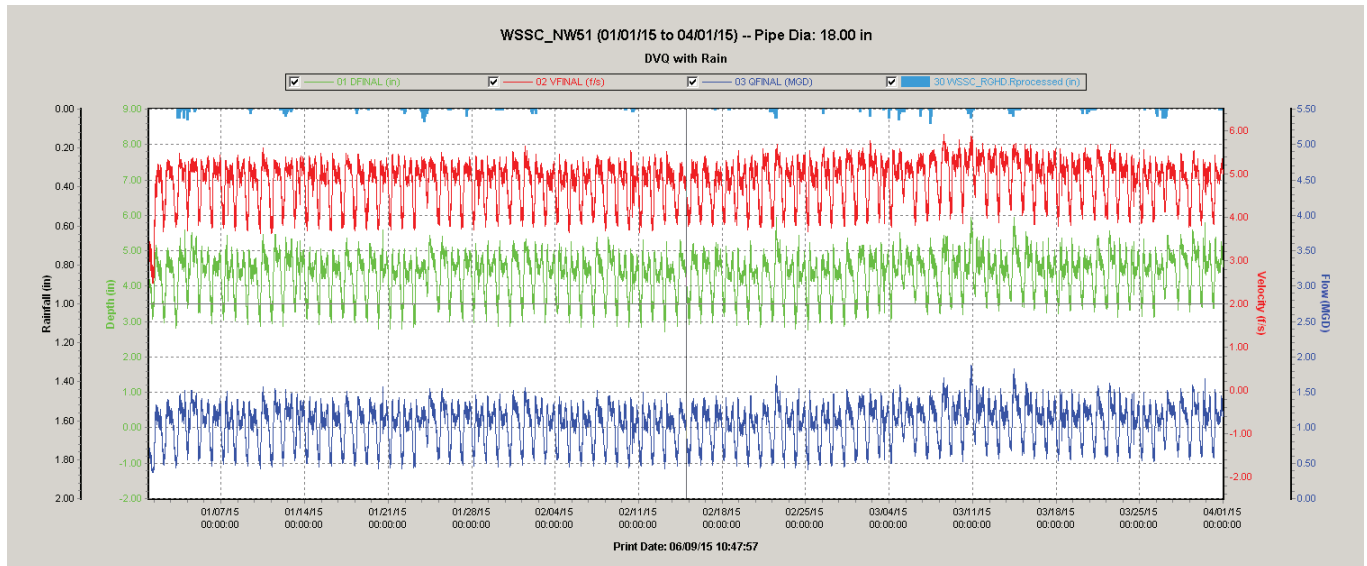
Site: OU05
 Pipe Dia: 12.0
 Assigned RG: RG-04
 Comments: FL902 Meter - Installed on 12/9/14

Date	Avg. Daily Flowrate (cfs)	Daily Flow (mg)	Daily Flow (1000 Cu. Ft.)	Min. Rate 15-min (cfs)	Peak Rate 15-min (cfs)	Peak Depth (in)	Percent Full Pipe	Total Rain (in)	Peak Hourly Rain (in)	Peak Interval Rain (in)
4/1/2015 (Wed)	0.19	0.36	48.21	0.14	0.27	6.09	50.76 %	0.00	0.32	0.00
4/2/2015 (Thu)	0.17	0.32	42.62	0.04	0.32	6.26	52.17 %	0.00	0.00	0.00
4/3/2015 (Fri)	0.14	0.27	35.72	0.04	0.31	6.19	51.61 %	0.00	0.00	0.00
4/4/2015 (Sat)	0.10	0.18	24.48	0.04	0.22	5.41	45.07 %	0.00	0.00	0.00
4/5/2015 (Sun)	0.11	0.20	26.23	0.04	0.23	5.33	44.45 %	0.15	0.09	0.04
4/6/2015 (Mon)	0.16	0.31	40.96	0.05	0.26	5.79	48.28 %	0.00	0.00	0.00
4/7/2015 (Tue)	0.17	0.32	43.05	0.04	0.32	6.29	52.46 %	0.00	0.00	0.00
4/8/2015 (Wed)	0.17	0.31	42.08	0.04	0.29	5.95	49.58 %	0.00	0.00	0.00
4/9/2015 (Thu)	0.16	0.30	40.72	0.05	0.29	6.24	52.01 %	0.00	0.00	0.00
4/10/2015 (Fri)	0.16	0.29	38.65	0.05	0.29	6.15	51.22 %	0.00	0.00	0.00
4/11/2015 (Sat)	0.13	0.24	32.35	0.05	0.23	5.73	47.75 %	0.10	0.06	0.01
4/12/2015 (Sun)	0.13	0.25	33.37	0.04	0.28	6.16	51.30 %	0.00	0.00	0.00
4/13/2015 (Mon)	0.17	0.32	42.46	0.05	0.36	6.87	57.22 %	1.11	0.51	0.09
4/14/2015 (Tue)	0.15	0.29	38.20	0.04	0.27	6.08	50.65 %	0.01	0.01	0.01
4/15/2015 (Wed)	0.16	0.30	40.50	0.04	0.32	6.84	56.97 %	0.00	0.00	0.00
4/16/2015 (Thu)	0.17	0.32	42.21	0.05	0.32	6.16	51.33 %	0.00	0.00	0.00
4/17/2015 (Fri)	0.16	0.30	39.65	0.06	0.60	8.72	72.65 %	0.00	0.00	0.00
4/18/2015 (Sat)	0.12	0.23	30.24	0.04	0.30	6.01	50.12 %	0.20	0.20	0.05
4/19/2015 (Sun)	0.13	0.24	32.10	0.04	0.25	5.79	48.28 %	0.00	0.00	0.00
4/20/2015 (Mon)	0.15	0.29	38.46	0.04	0.27	6.15	51.22 %	0.00	0.00	0.00
4/21/2015 (Tue)	0.15	0.29	38.14	0.04	0.27	5.99	49.89 %	0.00	0.00	0.00
4/22/2015 (Wed)	0.16	0.30	40.57	0.04	0.28	6.14	51.13 %	0.30	0.15	0.03
4/23/2015 (Thu)	0.16	0.29	39.15	0.04	0.26	5.83	48.62 %	0.00	0.00	0.00
4/24/2015 (Fri)	0.16	0.29	39.18	0.04	0.27	6.01	50.12 %	0.00	0.00	0.00
4/25/2015 (Sat)	0.14	0.25	33.80	0.05	0.23	5.69	47.44 %	0.00	0.00	0.00
4/26/2015 (Sun)	0.10	0.19	25.87	0.04	0.23	5.52	45.97 %	0.01	0.01	0.01
4/27/2015 (Mon)	0.18	0.33	43.63	0.05	0.37	6.83	56.88 %	1.40	0.27	0.07
4/28/2015 (Tue)	0.18	0.33	43.93	0.06	0.30	6.18	51.47 %	0.01	0.01	0.01
4/29/2015 (Wed)	0.15	0.28	37.66	0.05	0.29	6.14	51.13 %	0.00	0.00	0.00
4/30/2015 (Thu)	0.16	0.30	39.46	0.05	0.27	6.04	50.37 %	0.00	0.00	0.00

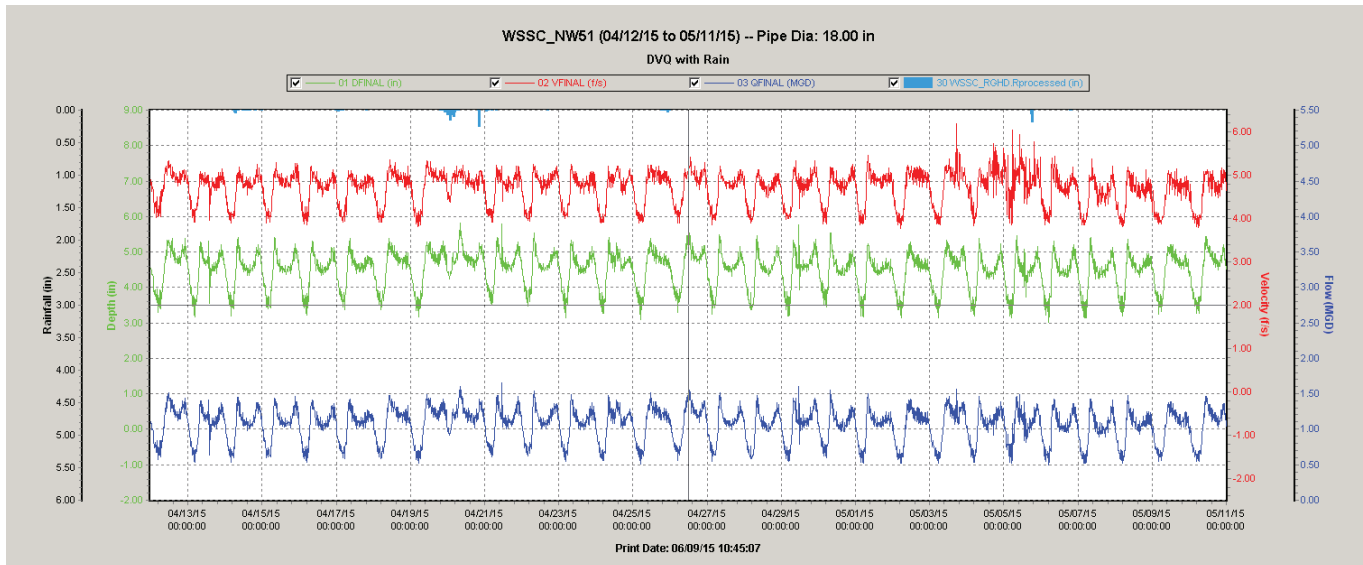
DVQ WITH RAIN (YEARLY)



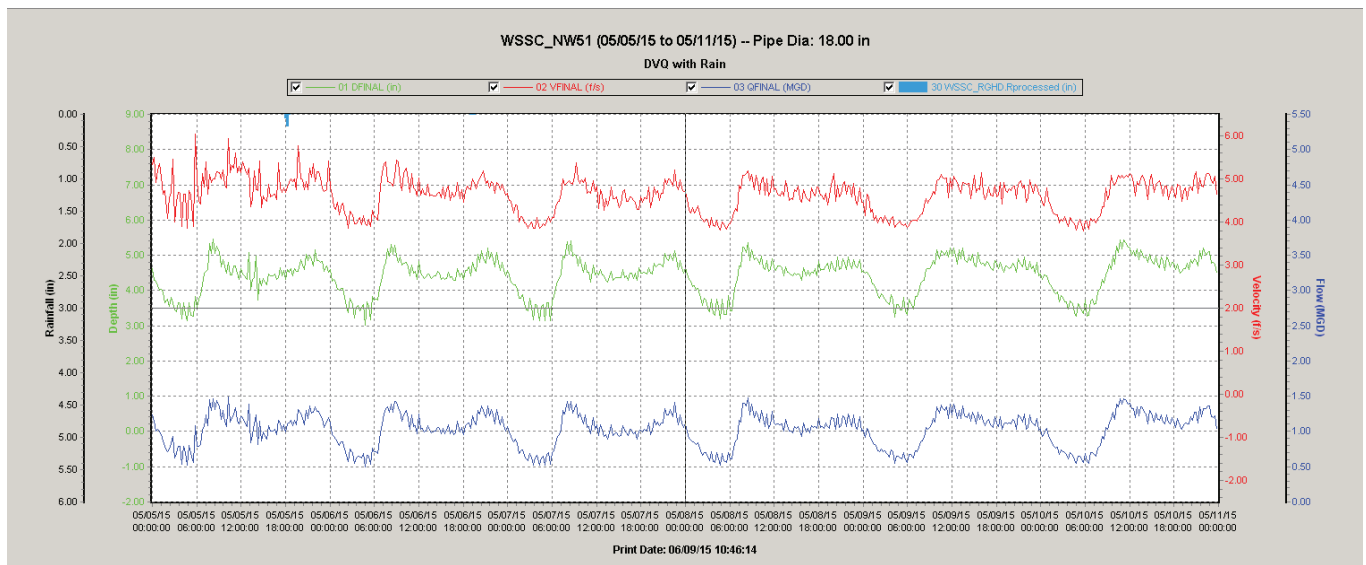
DVQ WITH RAIN (QUARTERLY)



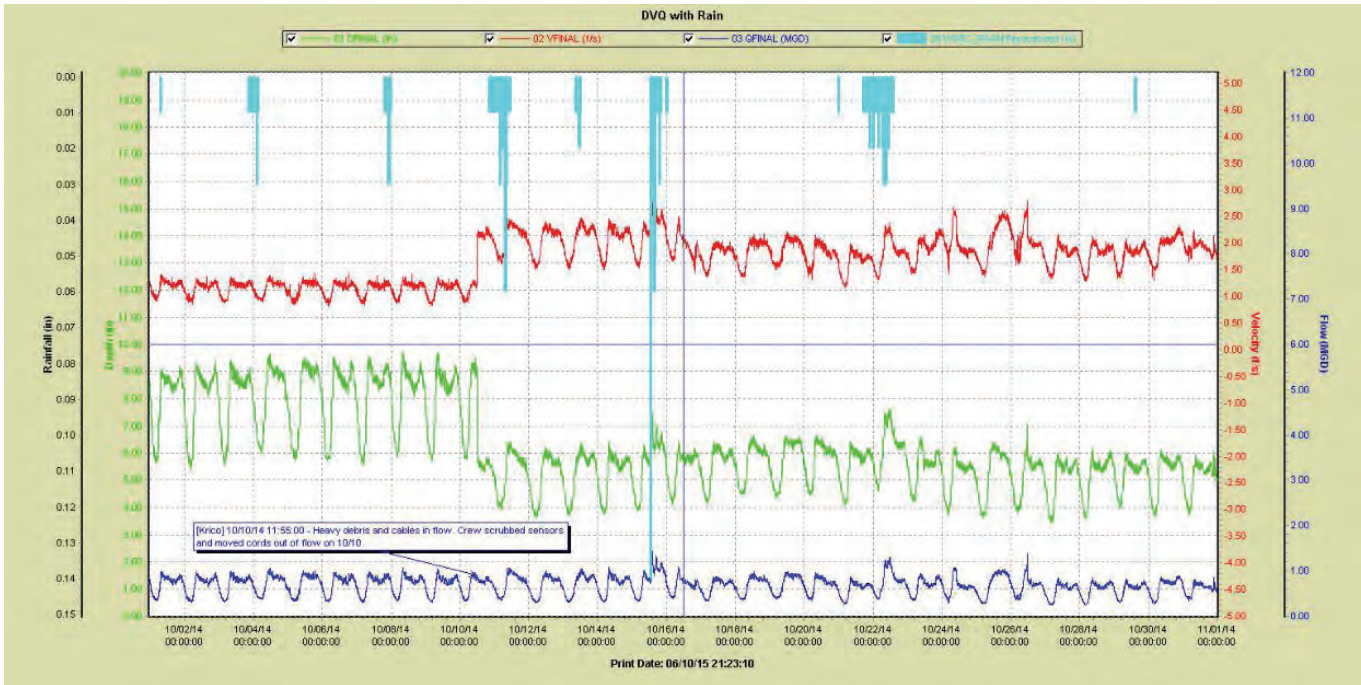
DVQ WITH RAIN (MONTHLY)



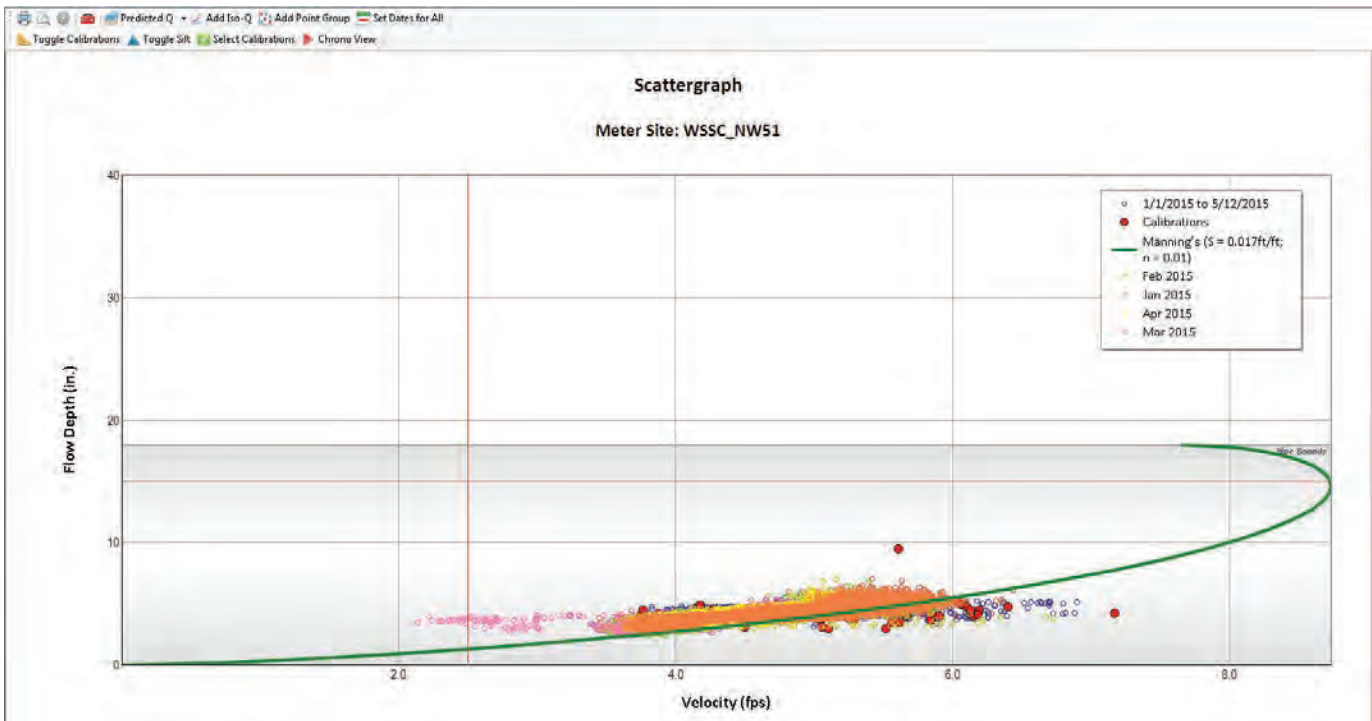
DVW WITH RAIN (WEEKLY)



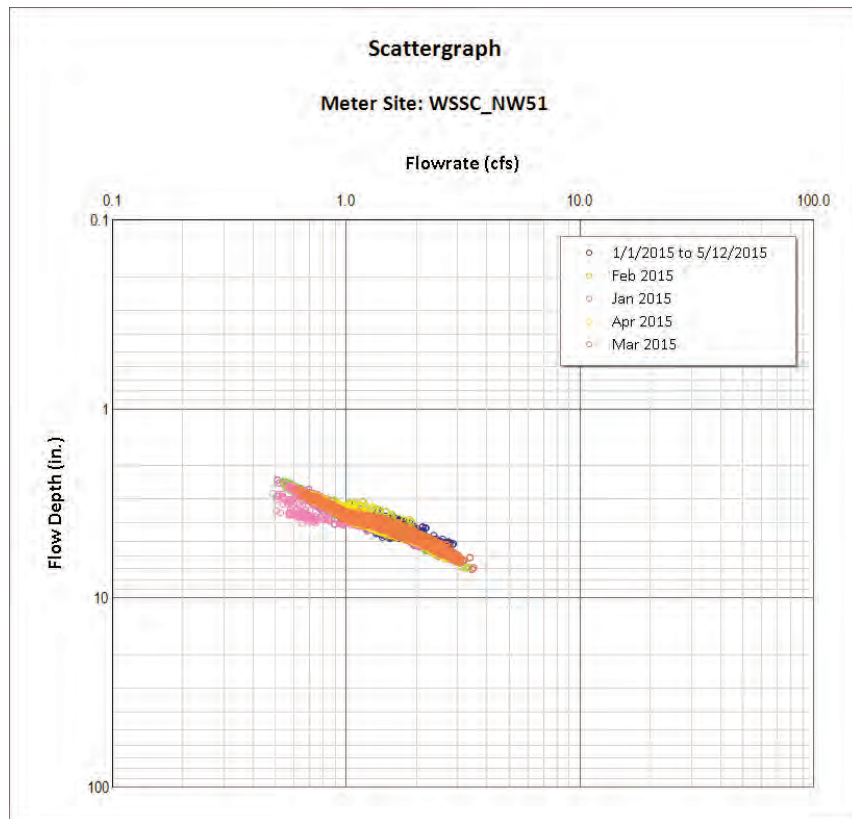
DVQ WITH RAIN (MONTHLY AND ANNOTATED)



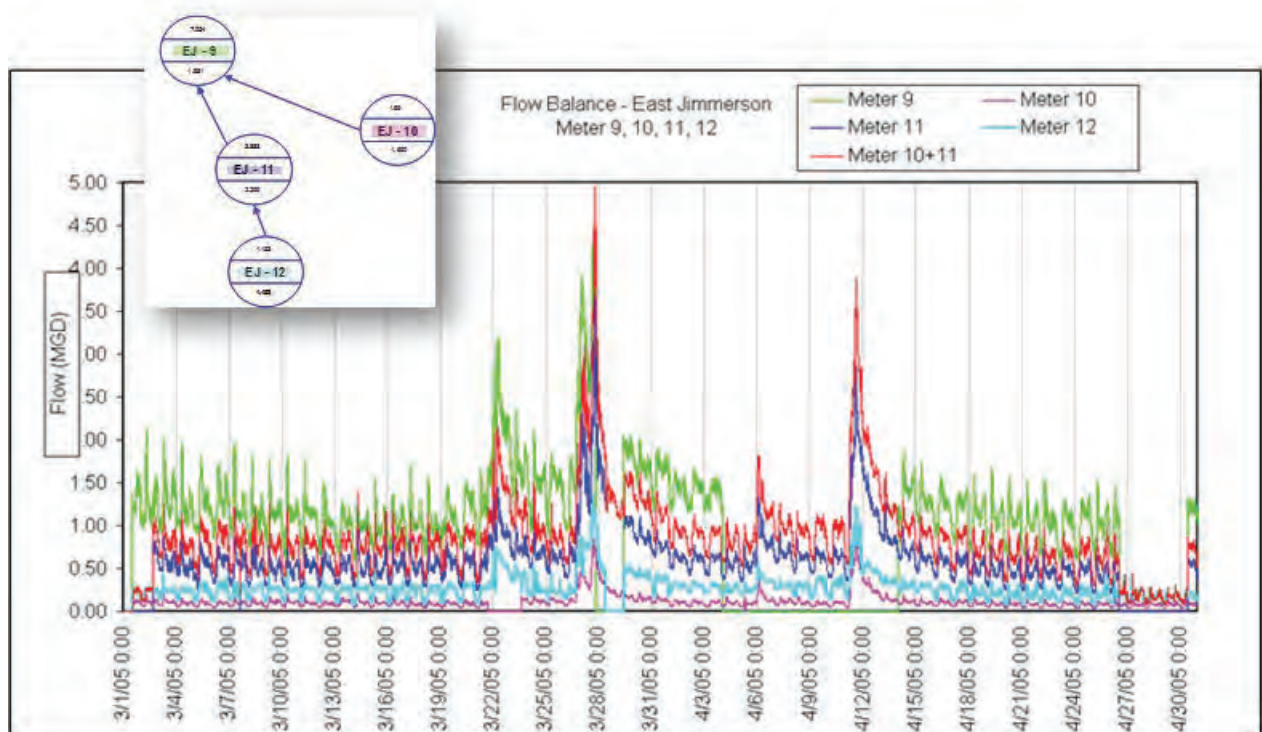
SCATTERGRAPH (BY MONTH WITH CALS)



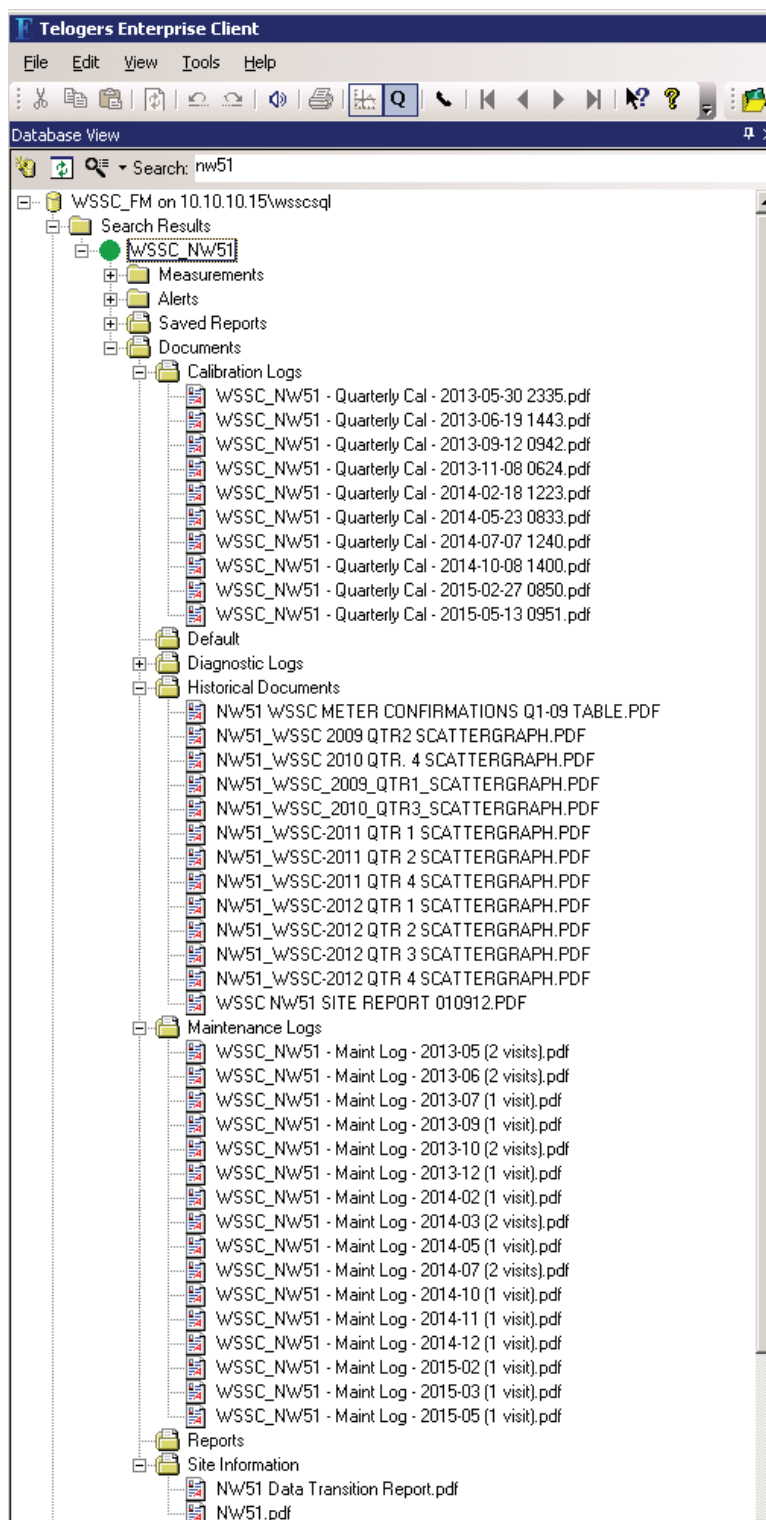
Q vs. DEPTH SCATTERGRAPH



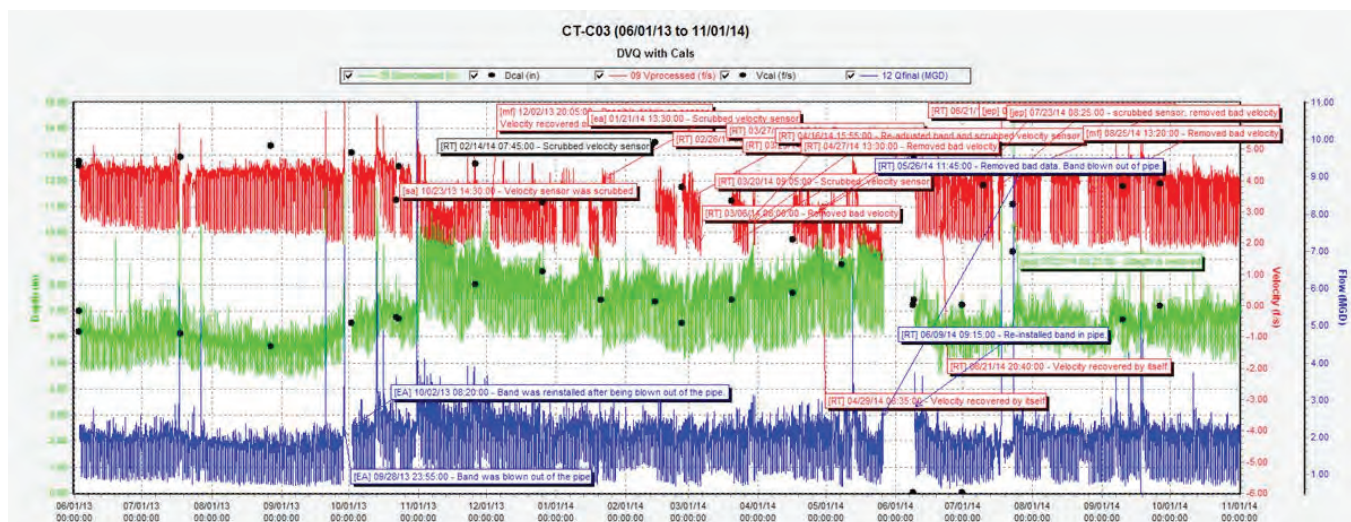
FLOW BALANCING DIAGRAM



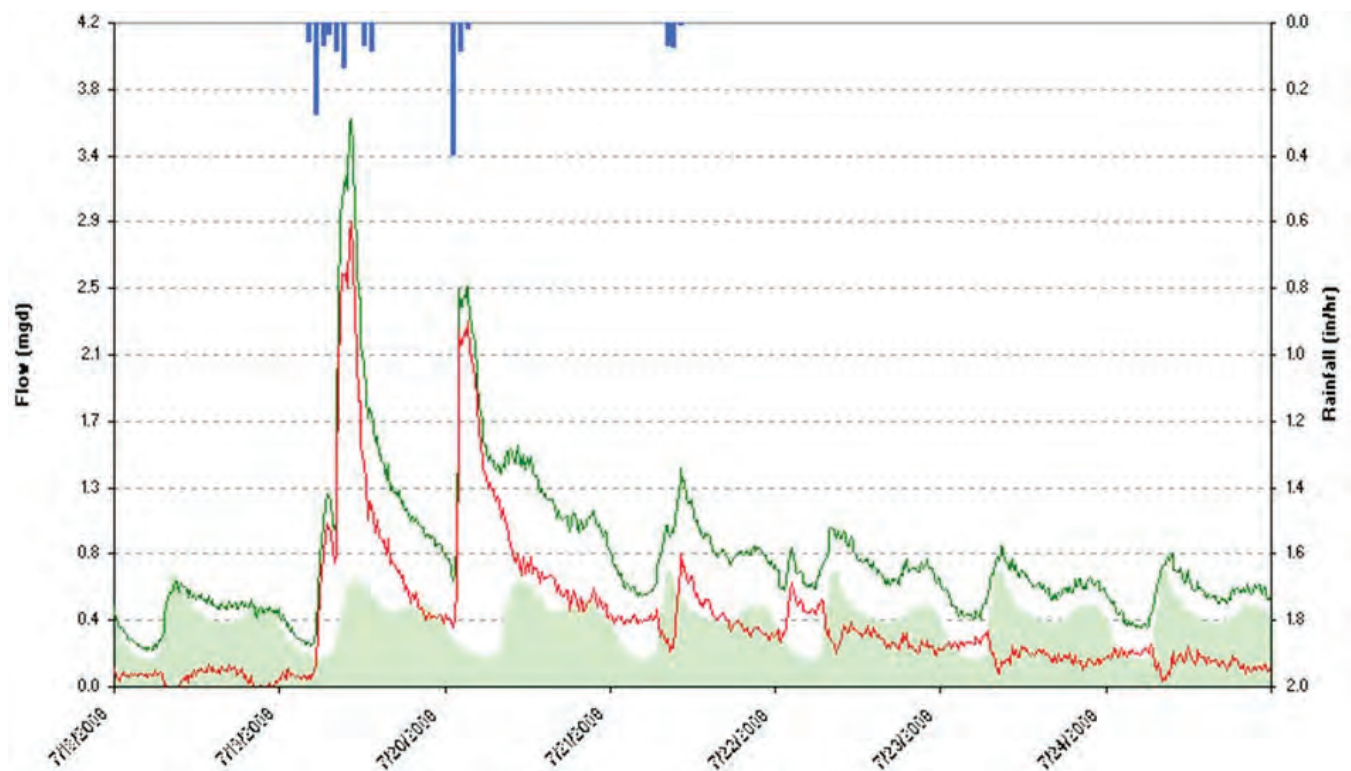
TELOG (TEC) DOCUMENT DIRECTORY STRUCTURE



RAW VS. EDITED DVQ WITH VERIFICATION POINTS



DISCRETE I/I



TAB 11
PLANS

The RJN Health and Safety Plan begins on page 92.

The Quality Control and Quality Assurance Plan for flow monitoring processes begins on page 132.

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RJN Safety Policy Statement

Our Policy:

It is the policy of RJN Group, Inc. to provide a safe working environment for all of our employee owners, as well as to comply with federal, state and local safety regulations. At RJN Group, we believe that the safety of our employee owners is a primary "core value" that we all must contribute to each and every day. The impact of workplace injury and illness affects the well being of both the company and our families. This Safety Program is not just a set of procedures; it is a mechanism to instill a safety focused "state of mind" in all of us.

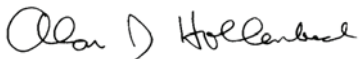
Our Objectives:

The objectives of our Safety Program are:

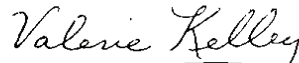
- To make safety a "core value" at RJN
- To clearly state that unsafe practices are not acceptable
- To train RJN employees in safety practices and procedures
- To ensure that all employees acknowledge their personal responsibility for safe work practices
- To continuously evaluate and update our safety program

Our Responsibilities:

Safety is everyone's responsibility. It starts with me and all company management supporting the necessary training and commitment to safety, including the availability of proper safety equipment. It continues to all employees in the workplace and their commitment to use safety equipment provided and to follow the rules of conduct contained in this safety program. Only after we all accept responsibility can we collectively prevent incidents in the workplace.



Alan J. Hollenbeck, P.E., BCEE
President/CEO



Valerie Kelley
Chief Financial Officer



Jeff Plymale
Chief Operating Officer



Paul Costa
National Sales Manager

Introduction

This is the official Safety Manual for RJN Group, Inc., hereinafter called RJN, with principal offices at 200 W. Front Street, Wheaton, Illinois. The most current version of this manual, revised January 2014, shall apply to all operations and locations without exception.

People are RJN's most important asset. RJN considers employee safety its primary concern. The RJN Safety Program exists primarily to ensure employee well being. As a condition of continued employment, employees will be expected to know and comply with their safety responsibilities as outlined in this manual. Any employee questions or concerns regarding the RJN Safety Program shall be addressed immediately by location management.

The constantly evolving nature of the safety field makes it impossible for this manual to cover all circumstances. These policies and procedures are the minimum requirements necessary for safe performance and continued employment with RJN. At any time, the policies and procedures in this manual may be supplemented by additional safety equipment and procedures. Deviation from the use of the minimum equipment, policies and procedures contained in this manual is permitted only through the use of a location or Job Specific Safety Plan, as described herein.

Any additions or changes to the policies and procedures in this manual shall be unanimously agreed upon by all RJN safety representatives and then approved in writing by Alan Hollenbeck, President/CEO. After changes or additions have been approved, this manual shall be updated and sent to all locations. For the most current version of this manual, contact the Director of Human Resources.

Stop Work Authority

As a member of the RJN team, you are responsible, authorized and obligated to stop any work deemed unsafe or that violates a safety policy or procedure. All employees have stop work authority. Employee actions in support of this policy are firmly supported by RJN management.

NEVER ASSIGN AN UNSAFE TASK.
NEVER PERFORM AN UNSAFE TASK.
RJN WILL ALWAYS SUPPORT A SAFE EMPLOYEE.

CALL AL HOLLENBECK, PRESIDENT/CEO, ANY TIME, DAY OR NIGHT, IF YOUR SAFETY CONCERNS ARE NOT BEING HANDLED IN AN IMMEDIATE AND AGGRESSIVE MANNER BY YOUR LOCATION MANAGEMENT.

OFFICE: 630-682-4700 X317 CELL: 630-926-7370

Safety Disciplinary Policy

Any employee who knowingly violates, or has knowledge of and allows the occurrence or continuation of a violation of, the RJN Safety Program shall be subject to disciplinary action in accordance with RJN policy as outlined in the RJN Personnel Practices Handbook. The terms knowingly and knowledge of are defined as having information of facts or events that could have prevented the unsafe act or condition from occurring.

Nothing in this policy should be construed to require progressive discipline. RJN reserves the right to immediately terminate any employee for violations of the company safety program or other policies.

All RJN management may give written safety reminders or warnings.

Depending on the nature of the incident, disciplinary action may be in the form of a verbal counseling, a performance improvement plan or termination.

Prompt disciplinary action shall be taken as soon as practical following the identification of safety violations. Any employee charged with a violation of the RJN Safety Program, shall be given the opportunity to explain his conduct to the field manager and safety representative or other investigator assigned by RJN prior to the imposition of disciplinary action under this policy. RJN reserves the right to determine the level of disciplinary action when considering violations of safety policy.

Any gross violation of the RJN Safety Program may result in immediate termination of employment.

Safety Responsibilities

RJN employees, at all levels, are responsible for maintaining an environment where work may be completed in a safe manner. The following sections refer to the different levels of responsibility.

RJN Management Safety Responsibilities

A poor safety record is a significant management problem. It is the goal of RJN management to secure and maintain the commitment of all employees to the RJN Safety Program as well as develop, implement and constantly improve project safety.

To accomplish this, RJN management shall:

- ◆ Provide reasonable safeguards to help insure safe working conditions.

- ◆ Support the safe and efficient development of all work activities, regardless of its impact on production.
- ◆ Develop, maintain and enforce written safety policies and procedures to insure unity of effort and compliance.
- ◆ Make needed appropriations to insure safe working conditions.
- ◆ Monitor and evaluate the effectiveness of the RJN Safety Program.
- ◆ Establish accountability, remain involved and set a good example.
- ◆ Respond to and attend OSHA inspections.
- ◆ Ensure that all aspects of the RJN Subcontractor Safety Management Program are being followed.

Project Manager Safety Responsibilities

The project manager is responsible for the safety planning on each project and shall set an example for teammates by demonstrating a positive attitude toward incident prevention and safety.

The project manager shall:

- ◆ Constantly review project safety and take corrective actions when necessary.
- ◆ Support and cooperate with the field manager and safety representative in all aspects of project safety.
- ◆ Ensure that the Project Manager aspects of the Subcontractor Safety Management Program are being followed.
- ◆ Coordinate activities with the field manager and safety representative and assist with the resolution of safety issues as they arise.
- ◆ Ensure that project safety is the priority over production.
- ◆ Ensure that every project is properly staffed and equipped for safety.
- ◆ Actively participate in at least one (1) monthly safety meeting each quarter.

- ◆ Complete OSHA's 10-Hour Outreach Training in Construction within the first twelve (12) months of accepting project management responsibilities.
- ◆ Spend four (4) documented hours per calendar quarter actively performing field work with field crews. This work should be coordinated with and documented by the safety representative.
- ◆ Obtain RJN Safety Certification within twenty-four (24) months of accepting project manager responsibilities. Existing project managers may not be grandfathered into an RJN safety certification.

Field Manager Safety Responsibilities

Safety of the field employees is a primary responsibility of the field manager. The field manager shall set an example for them by demonstrating a positive attitude toward safe work practices and incident prevention.

The field manager shall:

- ◆ Assign field employees to specific tasks on the basis of their training, work experience and physical condition.
- ◆ Instruct each new field employee regarding the scope of work, expectations, methods and procedures and verify that the employee understands instructions and knows how to safely perform assigned tasks.
- ◆ Facilitate a monthly safety meeting. The monthly safety meeting should be attended by all location field employees. An attendance roster shall be kept. The roster shall be sent to the Director of Human Resources for retention. A copy of the roster shall also be kept on file in the local office.
- ◆ Ensure that employees do not operate equipment unless they have been instructed in the equipment's proper use and operation.
- ◆ Be an active participant in project safety planning.
- ◆ Be an example to field employees in day-to-day activities by clearly showing active support of the RJN Safety Program.
- ◆ Instruct field employees about their safety responsibilities and make available information and equipment applicable to their particular phase of work.
- ◆ Assist in the investigation of all incidents and known near incidents per company policy. Expedite proper corrective action as required.

- ◆ Suspend subcontractor or visitor work activities for unsafe practices and immediately notify the project manager and safety representative.
- ◆ Ensure all training is accomplished and all documentation is sent to the safety representative.
- ◆ Instruct all field employees on the safe use of all chemicals and the proper use of Safety Data Sheets.
- ◆ Assist in the execution of RJN's policy regarding OSHA compliance reviews.
- ◆ Ensure that field employees have the proper personal protective equipment for each work task being performed and that the equipment is being properly used and maintained.
- ◆ Complete OSHA's 10-Hour Outreach Training in Construction within the first twelve (12) months of accepting field manager responsibilities.
- ◆ Obtain RJN Safety Certification within the first twelve (12) months of accepting the position.
- ◆ Immediately report all unsafe acts and conditions to the safety representative.
- ◆ Report all incidents and injuries, no matter how minor, to the safety representative immediately.
- ◆ Ensure timely repair or replacement of broken tools, equipment and vehicles.

Safety Representative Safety Responsibilities

The safety representative shall support the Field manager and the field employees and shall set an example for them by demonstrating a positive attitude toward safe work practices and incident prevention.

The safety representative shall:

- ◆ Formally inspect job sites on a monthly basis to check compliance with applicable regulations and policies. This formal inspection shall be documented on the Job Site Inspection form.
- ◆ Maintain all Location Specific Safety Plans.

- ◆ Ensure that the OSHA workplace poster *Job Safety and Health Protection* with appropriate state information is prominently displayed at all permanent and field locations where employees congregate.
- ◆ Ensure that the annual summary of injuries and illnesses per OSHA 29 CFR 1904 is posted where employees congregate at all permanent and field RJN locations from February 1 of the year following the year covered by the records and keep the posting in place until April 30.
- ◆ Be an active participant in project safety planning.
- ◆ Assist in the investigation of all incidents and known near incidents per company policy. Expedite proper corrective action as required.
- ◆ Ensure that the Safety Representative aspects of the Subcontractor Safety Management Program are being followed.
- ◆ Ensure all training is properly documented per company policy.
- ◆ Ensure the Project Manager's quarterly field work documentation is completed.
- ◆ Keep the Location Safety Data Sheet books up-to-date. Instruct all field employees on the safe use of all chemicals and the proper use of Safety Data Sheets.
- ◆ Assist in the execution of RJN's policy regarding OSHA compliance reviews.
- ◆ Complete OSHA's 10-Hour Outreach Training in Construction within the first twelve (12) months of accepting safety representative responsibilities.
- ◆ Obtain RJN Safety Certification within the first twelve (12) months of accepting the position.
- ◆ Perform and document annual confined space permit review.
- ◆ Perform annual fire extinguisher inspections/documentation for all office locations.

Field Employee Safety Responsibilities

RJN field employees, including crew leaders, field technicians, engineering staff and any employee performing field work for the company, are responsible for their own safety as well as the safety of their fellow field workers. All employees shall set an

example for their co-workers by demonstrating a positive attitude toward safe work practices and incident prevention.

Field employees shall:

- ◆ Follow and enforce all safety rules, policies and procedures.
- ◆ Attend monthly safety meetings.
- ◆ Watch for unsafe acts and unsafe conditions and take immediate corrective action as necessary. Field employees are responsible, authorized and obligated to stop work deemed unsafe or that violates RJN policy or procedure.
- ◆ Immediately report all unsafe acts and conditions to the field manager.
- ◆ Constantly model correct safety behavior on the job.
- ◆ Care for all injuries promptly. Provide first aid to their level of training and experience.
- ◆ Only perform field activities that they have been trained to perform.
- ◆ Report all incidents and injuries, no matter how minor, to the field manager immediately.
- ◆ Keep the work environment free from obstructions and debris. All materials and equipment shall be stored in their proper place.
- ◆ Use personal protective equipment (PPE) and safety devices provided by the company.
- ◆ Not engage in horseplay on the job site. Any employee observed doing so will be subject to disciplinary action.
- ◆ Know the locations of fire extinguishers, first aid kits and eye wash stations.
- ◆ Never sacrifice safety for production by not following safety procedures.

Subcontractor Safety Management

The purpose of this program is to provide guidance for working with RJN subcontractors, to insure positive safety results on each project. These guidelines apply to all RJN projects that include field work performed by subcontractors.

In order to be safety qualified for field work with RJN, a subcontractor shall have a current, approved Subcontract Safety Questionnaire on file. Location management shall only use safety qualified subcontractors.

The project manager shall:

- ◆ Communicate RJN's project safety expectations to the subcontractor before work begins.
- ◆ Communicate RJN safety expectations in a firm, consistent manner with all subcontractors.
- ◆ Provide current and completed subcontractor safety questionnaire to the safety representative during the subcontractor selection process and review on an annual basis prior to January 31.

The safety representative shall:

- ◆ Review each subcontractor safety questionnaire.
- ◆ Meet with the subcontractor's qualified person responsible for safety.
- ◆ When possible perform at least one site visit.
- ◆ Communicate to the RJN President/CEO whether the subcontractor is "acceptable" or "needs improvement". If the determination is "needs improvement" the communication will indicate deficiencies and recommendations for improvement.

Safety Education

New Employee Safety Orientation

All new employees shall complete RJN's New Employee Safety Orientation prior to being assigned to field work. The safety representative shall complete the New Employee Safety Orientation Checklist at the conclusion of the orientation and send the original or a pdf to the Director of Human Resources. New employee safety orientation shall consist of, at a minimum, the items listed below:

- ◆ Formal review of RJN Safety Program
- ◆ Presentation and review of safety manual
- ◆ Presentation of personal protective equipment (PPE)
- ◆ Incident reporting and emergency procedures
- ◆ Formal review of the RJN Safety Certification Program

The following personal protective equipment shall be issued to all new employees who work in the field:

- ◆ Hard Hat
- ◆ Safety Eyewear
- ◆ Appropriate Hand Protection
- ◆ Class II Vest (minimum)

Other personal protective equipment shall be issued as necessary. Additionally, new employees shall receive the Footwear Reimbursement Form and Immunization Information.

Employee Education and Training

Education and training are the foundation of the RJN Safety Program. All training given under the RJN Safety Program shall be documented. The safety representative shall retain a copy of all training documentation and shall send the original or a pdf to the Director of Human Resources.

Acceptable training documentation for an RJN approved course is the course completion certificate or completion card signed by the course instructor.

Acceptable task training documentation is the appropriate RJN Task Training Form stating what task training is being documented and when and where the task training was completed. The completed task training form shall have the signatures of the field manager and/or safety representative and the trained employee.

Only trainers designated by the safety representative or employees with an RJN Safety Certification can perform task training as outlined in this program.

RJN Safety Certification Program

All new field employees and project managers shall automatically enter the RJN Safety Certification Program. Upon completion of the RJN Safety Certification Program the employee shall receive an RJN Safety Certification document from the location Principal in Charge, signed by the President/CEO and the location Principal in Charge.

Only employees with an RJN Safety Certification are authorized to be crew leaders, field managers, project managers, safety representatives and task trainers. All field employees, field managers, project managers, and safety representatives shall achieve safety certification within their first two (2) years of employment, unless stated otherwise in this manual.

Proper documentation of the successful completion of the required training for RJN safety certification is necessary. This documentation shall be filed in the Human Resources Department and shall be verified by the Director of Human Resources.

Upon completion and verification of the required training, the employee shall receive a formal safety review by the location's field manager, safety representative and location Principal in Charge. Following the completion of the safety review, the location Principal in Charge shall send a signed letter to the Director of Human Resources authorizing the issuance of RJN Safety Certification.

Required RJN Safety Certification Training

(4-hour minimum per class, unless otherwise noted below)

- ◆ RJN approved First Aid/CPR Training (within first 12 months)
- ◆ RJN approved Defensive Driver Training (Before operating RJN vehicles)
- ◆ RJN approved Confined Space Entry Program (before performing manhole entries). A one-hour, internet-based training program is acceptable before performing manhole entry. However, employees are required to attend a minimum four-hour, classroom-based confined space entry training within 12 months of the internet-based training.
- ◆ RJN approved Traffic Control Program (within first 12 months)
- ◆ OSHA's 10-Hour Outreach Training in Construction Safety Program (within first 24 months, unless otherwise specified)
- ◆ All required RJN task training

Employee Task Training

(30 minute minimum sessions)

An employee shall never be asked to perform, and shall never perform, a task requiring written certification for which he has not been properly task trained.

Employee task training shall be performed by the field manager, safety representative, or his designee. Written certification of task training, including receipt of any required equipment manuals, signed by the field manager and safety representative or his designee and the trained employee, shall be sent to the Director of Human Resources.

RJN Task Training Requiring Written Certification

Employees cannot perform tasks requiring written certification of training unless the training has been performed and documented.

- ◆ Confined space entry equipment
- ◆ Manhole entry

- ◆ Blood borne pathogens
- ◆ Hand tools
- ◆ Pipe plug, use and maintenance
- ◆ Gas detection equipment, use and maintenance
- ◆ Traffic control equipment set-up and removal
- ◆ Chemical use and Hazard Communication
- ◆ Operation of company vehicles
- ◆ Fall protection/working at heights
- ◆ OSHA inspection training
- ◆ Confined Space Rescue

Temporary Worker Hiring and Training

Temporary workers shall only be hired through agencies approved by the RJN Human Resources Department.

All newly hired temporary workers shall receive a minimum of 30 minutes of safety awareness training by the field manager, safety representative, or his designee before being assigned to field work with an RJN crew.

Within 48 hours after a temporary worker is hired and the initial safety awareness training is completed, the Temporary Worker Safety Training Checklist, signed by the field manager, safety representative or his designee and the temporary worker, shall be sent to the Director of Human Resources.

All temporary workers shall use proper personal protective equipment as required by RJN policy.

At no time shall a temporary worker be asked to perform a task requiring written certification of training for which he has not been properly task trained.

At no time shall a temporary worker be asked to use equipment that he has not been trained on how to use properly according to manufacturer's instructions.

Written certification of task training, utilizing the appropriate RJN task training form shall be kept by the Director of Human Resources.

In order for a temporary worker to perform confined space entry or act as an attendant, he shall be task trained on all applicable tasks and equipment and have successfully completed an approved classroom and/or internet-based confined space entry training class.

Personal Protective Equipment

Personal protective equipment (PPE) shall be used when required by RJN procedure. The ultimate responsibility to use and maintain PPE belongs to the employee. PPE can be acquired from the field manager at anytime.

Do not work without the required PPE for any reason.

ANSI-compliant hard hats, in good condition, shall be worn during all manhole entries. ANSI-compliant hard hats, in good condition, shall also be worn whenever there is a possible danger of head injury from impact of falling/flying objects or from electrical shock and burns.

ANSI-compliant footwear shall be worn during all field activities and while in RJN warehouse facilities. ANSI-compliant footwear shall be reimbursed up to \$150 per fiscal year.

ANSI-compliant eye protection shall be worn during all field activities that present the potential for eye injury from physical or chemical agents. ANSI-compliant prescription safety eyewear shall be reimbursed up to \$200 per fiscal year.

ANSI-compliant face protection shall be worn during all field activities that present the potential for face injury from physical or chemical agents.

ANSI-Class II safety vests shall be worn when employees are exposed to low volume, low speed traffic.

ANSI-Class III safety vests shall be worn when employees are exposed to high volume, high speed traffic.

Under extremely low volume, low speed traffic conditions, the field manager or safety representative may authorize the wearing of high visibility orange-red or fluorescent-green apparel instead of an ANSI-Class II vest.

Raingear, when issued, shall be fluorescent-green or high visibility orange-red Class II minimum.

Maintenance of company issued safety harnesses is the responsibility of the employee. Normal wear is expected and harnesses shall be replaced as they become worn.

Proper hand protection shall be used any time a physical or biological hazard exists, or could reasonably be expected to exist, to the hands of an employee.

Only trained and medically certified employees shall use respirators. All employees using respirators shall be properly trained, fit-tested and provided respirator

equipment that fits them. Copies of all respirator medical evaluations and respirator fit testing shall be kept at the location by the safety representative and the originals or pdfs shall be sent to the Director of Human Resources.

The use of respirators on an RJN project requires a Job Specific Safety Plan.

The use of N95-type dust masks does not require compliance with the RJN respirator policy. However, the field manager, safety representative, or his designee, shall train the user on the proper use and disposal of an N95-type dust mask.

Hearing protection shall be used in any situation where the noise level is such that an employee cannot speak in a normal tone at arm's length to a fellow employee and be understood.

Confined Space Entry

In order for an employee or temporary worker to perform confined space entry or perform as an attendant, he shall be task trained on all applicable tasks and equipment and have successfully completed an approved classroom and/or internet based confined space entry training class.

Confined space entries shall be made with a minimum of two (2) properly trained workers.

ANSI-compliant hardhats, in good condition, shall be worn by entrants.

Continuous gas detection is mandatory during confined space entry. Entry is authorized only when readings are:

- ◆ less than 10% LEL
- ◆ less than 10 ppm H₂S
- ◆ less than 35 ppm CO
- ◆ between 19.5% – 20.9% Oxygen

Ventilation may be used to achieve acceptable atmospheres.

An RJN confined space entry permit, either paper or electronic and signed by the entry supervisor prior to entry, shall be used during the confined space entry.

All RJN entry permits, whether electronic or paper, shall be kept on file for at least one (1) year post-entry and be reviewed annually, during the first week of December, by the safety representative. This annual review shall be documented by the safety representative using the Annual Confined Space Permit Review Form and shall be kept on permanent file at the location.

Any unsafe condition that arises during a confined space entry shall cancel the entry.

Confined space entry shall be made using an RJN approved entry/non-entry retrieval configuration.

The three (3) RJN approved confined space entry/non-entry retrieval configurations are:

1. Manhole steps in sound structural condition used with a 7-foot or 9-foot DBI tripod with a Sala I or a Sala II winch, or a DBI SRL with emergency winch attached to the entrant's full body harness at the back D-ring.
2. A manhole ladder used with a 7-foot or 9-foot DBI tripod with a Sala I or a Sala II winch, or a DBI SRL with emergency winch attached to the entrant's full body harness at the back D-ring.
3. A 7-foot or 9-foot DBI tripod with a Sala I or a Sala II winch, used with a DBI SRL with emergency winch. The DBI SRL with emergency winch and the Sala I or Sala II winch shall be utilized with a Y-lanyard.

If a confined space is less than five (5) feet deep and the invert lines are less than 15 inches in diameter, use of rescue/retrieval entry equipment is not mandatory. However, the entrant is required to enter the confined space with proper PPE including a harness and the non-entry rescue/retrieval equipment shall be immediately available if its use becomes necessary.

RAPPELLING GEAR OR ROPE-BASED ENTRY SYSTEMS ARE NOT AUTHORIZED AND AT NO TIME SHALL BE USED.

Confined Space Entry Equipment

All confined space entry equipment shall be used in strict compliance with the manufacturer's operating instructions. All employees shall receive, from the field manager, safety representative, or his designee, proper task training, including copies of the manufacturer's operating/safety manuals, on the entry equipment they shall be expected to operate.

Entry equipment shall not be modified by any employee without the express written permission of the manufacturer.

All entry equipment shall be purchased directly from the manufacturer, from an authorized manufacturer's representative or from an authorized distributor.

Only original manufacturer's parts and accessories, purchased directly from the manufacturer, authorized manufacturer's representative or authorized distributor, shall be used to maintain RJN entry equipment.

Entry equipment maintenance and repair shall be performed by employees only to the extent that the manufacturer authorizes in their safety/operating manual.

Only Capital Safety/DBI Sala confined space entry equipment is authorized for purchase and use.

All confined space entry equipment shall be used, inspected and maintained per the manufacturer's operating and safety manual. At no time shall any confined space entry equipment be used that has excessive wear, damaged or missing components or has not passed inspection. A copy of all factory certifications, as well as all maintenance and repair paperwork shall be kept on file by the safety representative.

All DBI/Capital Safety self retracting lifelines shall be returned for factory inspection and re-certification every five (5) years.

The maximum lifespan of a confined space entry tripod is five (5) years. At no time shall a tripod older than five (5) years be used on an RJN job. At no time shall a tripod be used that has excessive wear or any damaged or missing components.

All gas detection equipment shall be operated and maintained per the manufacturer's recommendations.

All gas detectors shall be calibrated at least every 30 days by a task trained employee. Written documentation and certification of every calibration shall be maintained by the safety representative and kept on file at the location.

Maintenance and inspection of company issued safety harnesses is the responsibility of the employee. Normal wear is expected and new safety harnesses will be issued by the field manager as needed.

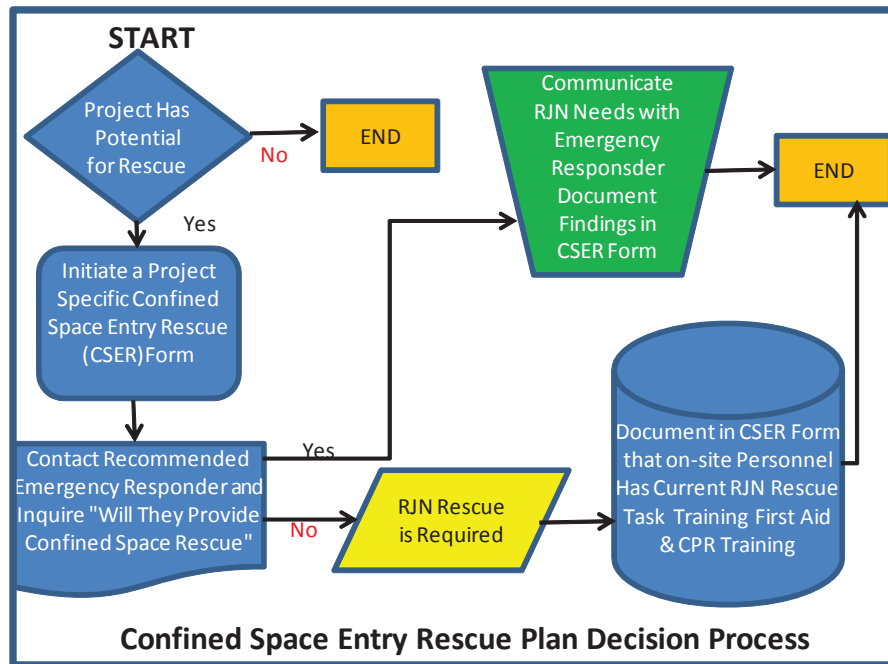
Confined Space Rescue

All projects require a Project-Specific Confined Space Rescue Plan signed by the project manager. The Project-Specific Confined Space Rescue Plan shall be documented on the Project-Specific Confined Space Rescue Plan form and shall be on file before work begins.

Only employees who have completed annual confined space rescue task training and have valid first aid/CPR certification are authorized to perform confined space entry rescue in confined spaces that have an acceptable atmosphere, as defined in this manual.

Employees who are not trained and authorized for entry rescue are authorized only to perform non-entry rescue and call 911 to request rescue services.

Before performing an entry rescue, entry rescue authorized employees shall call 911 and request rescue services. Once 911 rescue services arrive on the scene, employees are to relinquish control of the scene to the 911 rescue services and operate at their direction.



Confined space rescues shall be performed with a minimum of one attendant.

All confined space entry and non-entry rescues require immediate field manager and safety representative notification and immediate investigation per RJN policy.

Traffic Control

Temporary traffic control, per RJN policy, shall be used in all instances where employees are exposed to vehicular traffic.

All applicable federal, state, and local temporary traffic control regulations shall be followed by field employees.

These procedures, which shall be considered RJN's basic temporary traffic control plan, apply only to the following conditions:

- ◆ Daytime, short duration and/or mobile work on the shoulder
- ◆ Daytime, short duration and/or mobile work beyond the shoulder

- ◆ Daytime lane closure on two lane road with low volume traffic (self regulation)

All temporary traffic control zones listed above shall be set up according to the RJN standard typical application drawings included in this manual. Any other traffic conditions require a job specific traffic safety plan. Contracting for traffic control services may be required at the discretion of the project manager, field manager or safety representative.

Only employees having completed temporary traffic control classroom and traffic control equipment set-up and removal task training shall set up and remove temporary traffic control work zones.

All employees exposed to traffic shall wear high visibility safety apparel that meets the performance Class II or Class III requirements of the ANSI/ISEA 107-204. Under extremely low volume, low speed traffic conditions, the field manager may authorize the wearing of high visibility orange-red or fluorescent-green apparel instead of an ANSI Class II or III vest.

While exposed to traffic, all RJN vehicles shall use their vehicle high intensity lights.

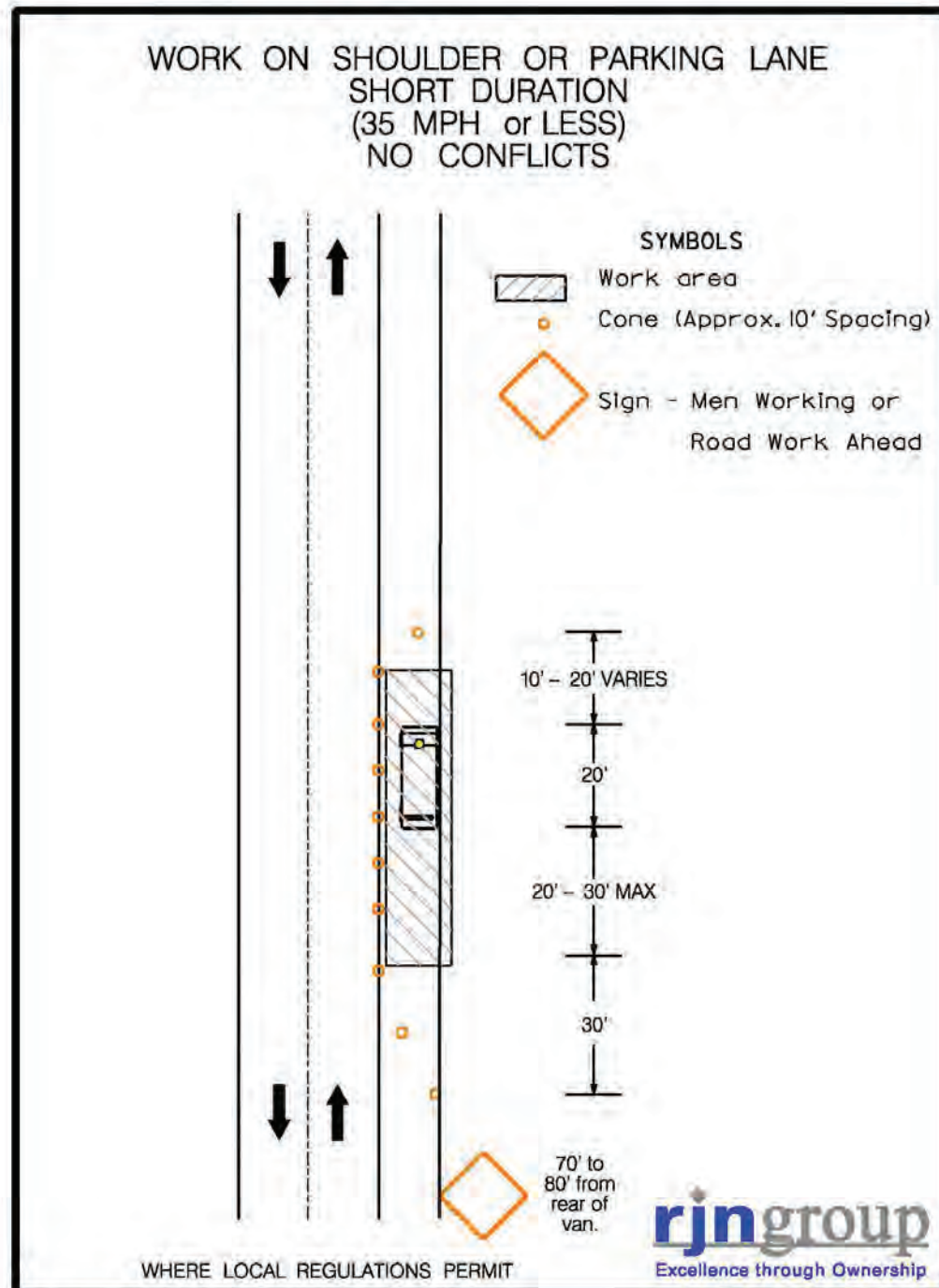
All RJN vehicles shall carry the necessary devices required to set up the three (3) RJN typical applications.

Any deviation from this procedure requires a written job specific plan for traffic safety.

Any RJN location may develop its own typical application drawings.

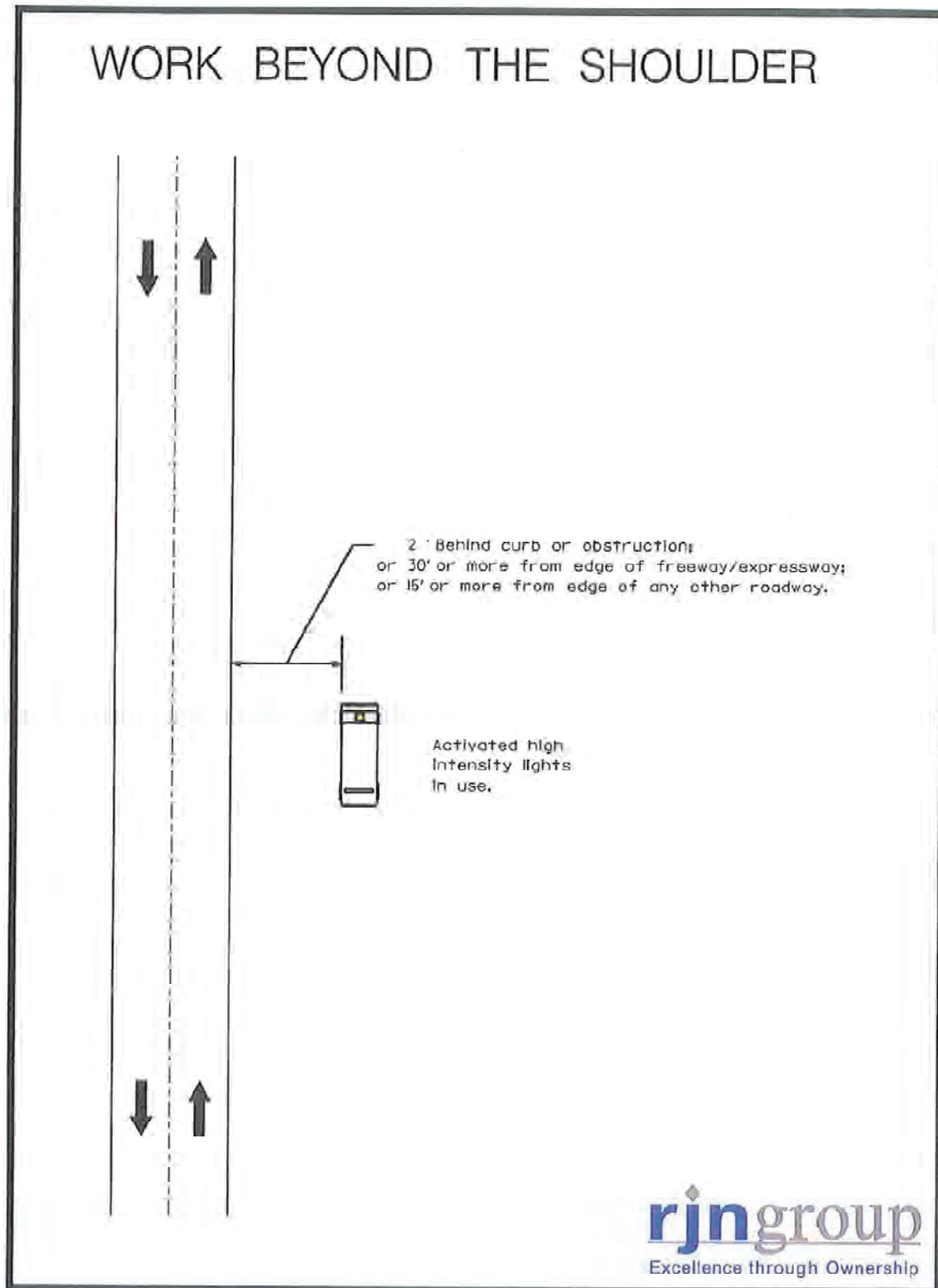
Traffic Control Typical Applications

Work Zone On the Shoulder

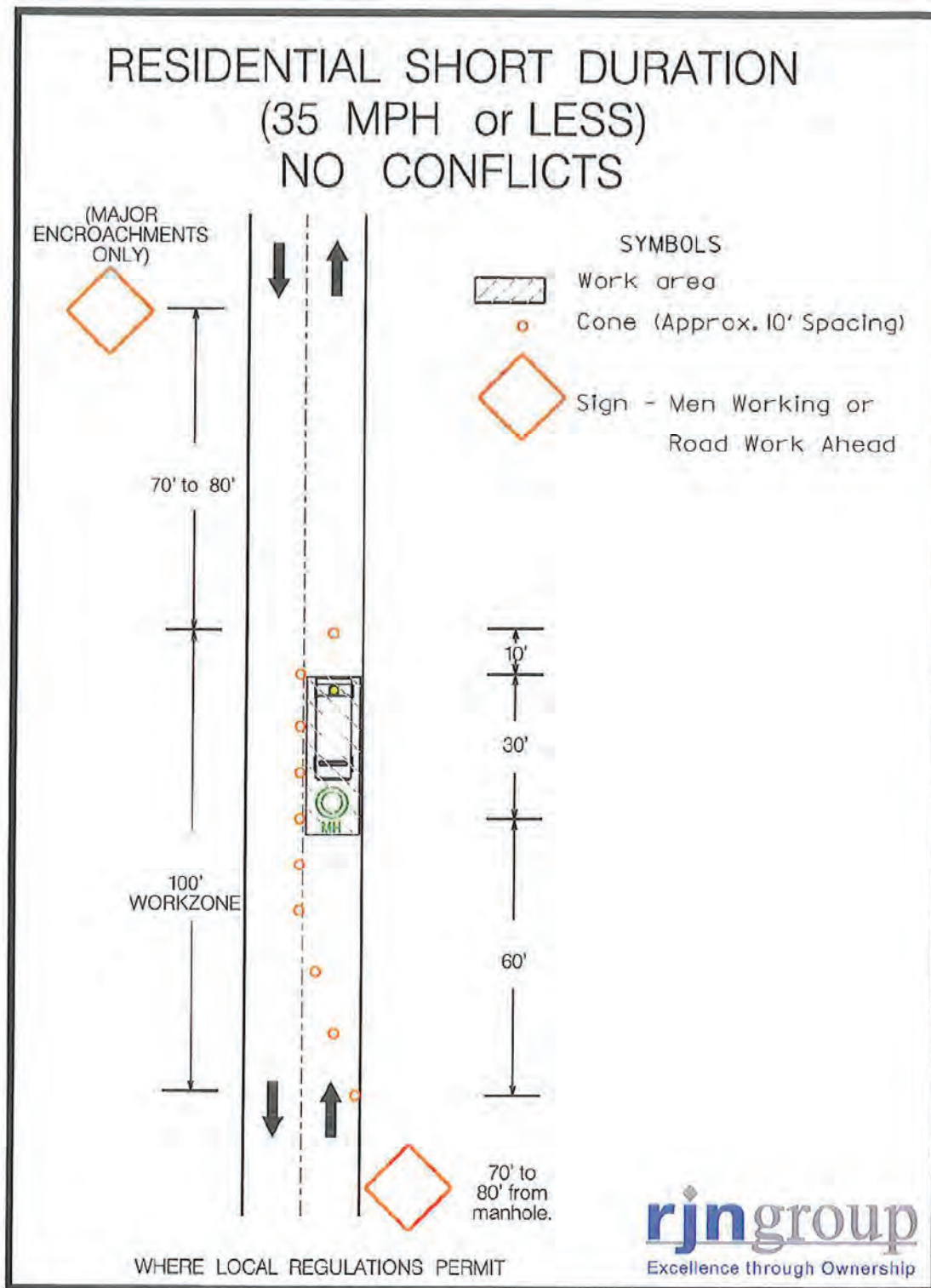


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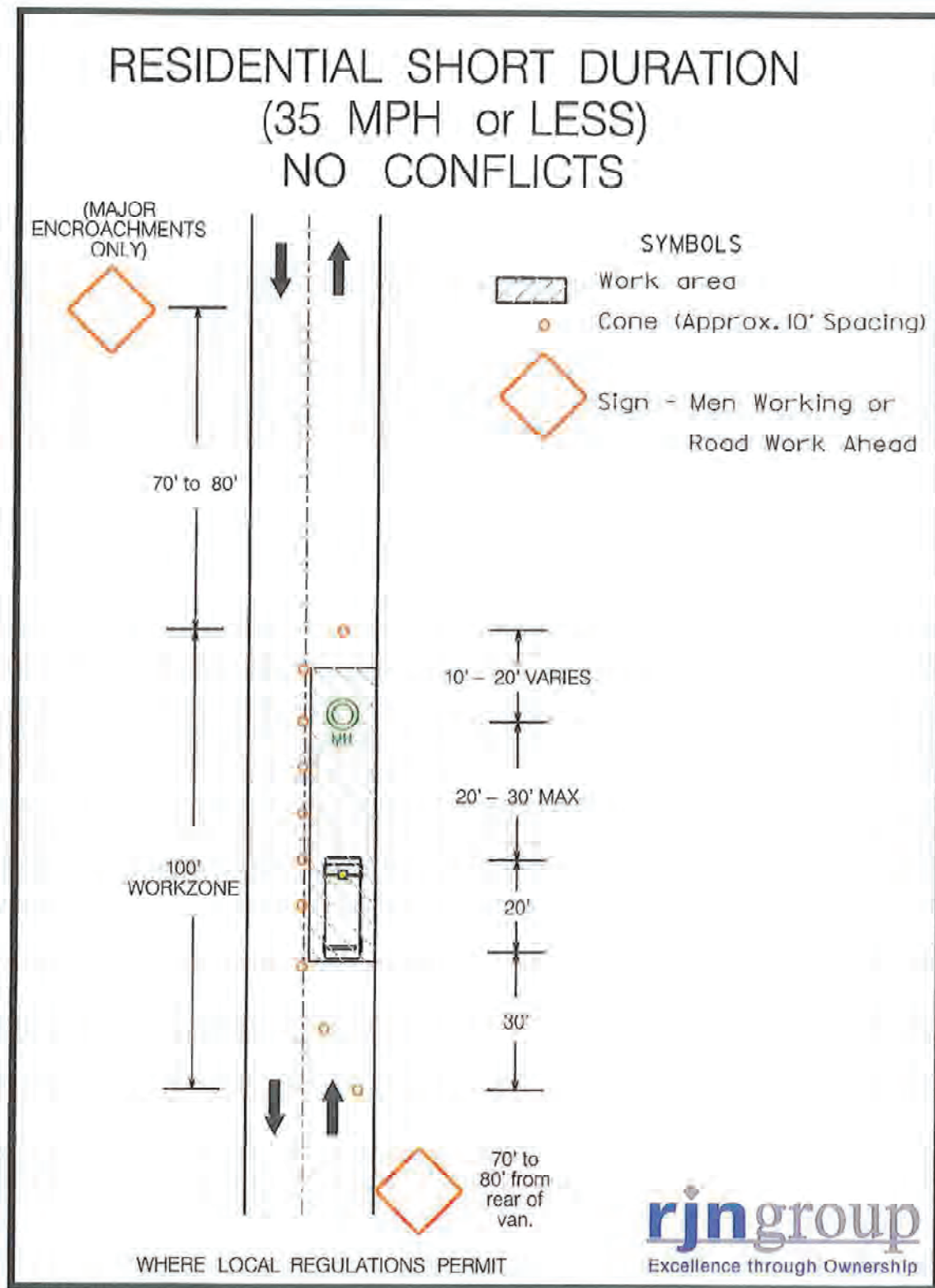
Work Zone Beyond the Shoulder



Work Zone Behind Van



Work Zone Ahead of Van



Company Vehicles

Any person operating an RJN vehicle shall possess a current, valid driver license.

Any person operating an RJN vehicle shall complete RJN-approved defensive driver training and Driving Company Vehicles task training before driving company vehicles will be authorized. All federal, state and local traffic laws shall be obeyed, including the wearing of seat belts.

Courtesy is extremely important and each employee shall keep in mind that he represents the company any time that he is operating a company vehicle.

Each vehicle shall have a signed documented Pre-Trip inspection prior to use and shall be maintained in good mechanical condition. If the vehicle does not pass the Pre-Trip Inspection then the field manager shall be notified immediately and the vehicle shall not be operated. Each month, drivers of company vehicles shall complete RJN's Vehicle & Safety Equipment Maintenance Checklist and submit it to the field manager. No company vehicle shall be operated if any mechanical problem exists that would compromise driver safety or vehicle operation.

A Motor Vehicle Report shall be requested for all employees who accept a contingent job offer. RJN shall obtain a Motor Vehicle Report any time reasonable cause exists, as well as annually at the time of the commercial insurance renewal.

Any employee whose duties require that he drive a company vehicle shall maintain a status of insurability with RJN's insurance carrier.

All employees whose job responsibilities may include driving a vehicle for company business are subject to:

- Pre-employment drug and alcohol testing
- Post-incident drug and alcohol testing
- Reasonable suspicion drug and alcohol testing

All traffic violations incurred by an employee while on company business or in a company vehicle shall be reported in writing to the field manager and/or safety representative within 24 hours of its receipt. All fines associated with a violation are the responsibility of the driver. Repeated violations shall be cause for disciplinary action.

At no time shall employees operate a single vehicle or a vehicle/trailer combination in interstate commerce that has a gross vehicle weight rating or gross combination weight rating, or gross vehicle weight or gross combination weight, of 10,001 pounds or more, whichever is greater.

Intrastate use of the above vehicles and vehicle/trailer combinations is authorized only when it is done legally in the state in which the vehicles and vehicle/trailer combinations are being operated. To authorize intrastate operation of the above vehicles and vehicle/trailer combinations, a Location Specific Safety Plan that cites the state laws allowing intrastate use of the above vehicles and vehicle/trailer combinations shall be developed.

RJN Fleet Safety Guidelines

1. Use of RJN vehicles by non-employees or unqualified employees is prohibited.
2. All traffic laws shall be obeyed. All fines are the responsibility of the driver.
3. Seat belts shall be worn at all times by all occupants of RJN vehicles.
4. All vehicle incidents involving damage to a company vehicle, company property, property of others, personal injury to an employee or to others shall be reported to the field manager and safety representative. Failure to report any incident involving a company vehicle is grounds for termination.
5. All employees shall follow applicable local, state and federal laws or regulations regarding the use of cell phones or smart phones at all times.

Regardless of the circumstances, including slow or stopped traffic, drivers shall pull off to the side of the road and safely stop the vehicle before placing or accepting a call. Employees may use a hands-free device to accept calls while driving, but shall refrain from discussion of complicated or emotional matters and keep their eyes on the road. Special care shall be taken in situations where there is traffic, inclement weather or the employee is driving in an unfamiliar area.

Employees who are charged with traffic violations resulting from the use of a personal or company issued cell phone or smart phone while driving shall be solely responsible for all liabilities that result from such action.

6. No radar equipment shall be permitted when driving on company business or in any RJN vehicle.
7. All drivers shall use good defensive driving techniques while operating company vehicles.
8. Any employee that is in charge of an RJN vehicle shall be responsible for all tools and equipment assigned to that vehicle.

9. All field vehicles shall be equipped with a readily accessible and permanently mounted fire extinguisher with an Underwriters' Laboratory rating of 5 B:C or more.
10. All field vehicles shall be equipped with a basic, readily accessible first aid kit and eye wash station.
11. All RJN vehicles shall be equipped with three (3) emergency reflective triangles.
12. No employee may operate a company vehicle beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. An employee may drive a maximum of 11 hours after 10 consecutive hours off duty.

Other Field Safety

Pneumatic Pipe Plugs

All pneumatic pipe plugging equipment shall be used in strict compliance with the manufacturer's operating and safety manual. All employees assigned to use pneumatic pipe plugging equipment shall receive from the field manager, safety representative, or his designee, pipe plug use and maintenance task training, including their own copies of the manufacturer's operating and safety manual.

Pneumatic pipe plugging equipment shall not be modified by any employee without the express written permission of the manufacturer.

All pneumatic pipe plugging equipment shall be purchased directly from the manufacturer, from an authorized manufacturer's representative or from an authorized distributor.

Only parts and accessories purchased directly from the manufacturer, an authorized manufacturer's representative or an authorized distributor shall be used to maintain RJN pneumatic pipe plugging equipment.

Pneumatic pipe plugging equipment maintenance and repair shall be performed by employees only to the extent allowed by the manufacturer.

Pneumatic pipe plugging equipment shall be used with a high-pressure extension hose with an attached pressure gauge. The hose must be pressure tested before daily use.

Pneumatic pipe plugging equipment shall be stored per the manufacturer's recommendations.

Pneumatic pipe plugging equipment shall be visually inspected before each use. Any damaged pneumatic pipe plugging equipment shall be immediately removed from service.

Pneumatic pipe plugging equipment shall be tested before each use to ensure that the equipment is operating per the manufacturer's guidelines. Any pneumatic pipe plugging equipment that does not meet manufacturer's specifications shall be immediately removed from service.

PNEUMATIC PIPE PLUGS ARE EXTREMELY DANGEROUS. NEVER ENTER A STRUCTURE WHILE A PNEUMATIC PIPE PLUG IS IN USE.

Electrical Safety

All 120-volt, single phase outlets in use by field employees shall have approved ground fault circuit interrupters (GFCI).

All flexible extension cords in use by field employees shall be connected to a GFCI outlet or attached through a GFCI device.

Employees shall visually inspect all receptacles, flexible extension cords, electrical equipment and electrical tools before each use for defects, such as deformed or missing pins, insulation damage or any indications of possible internal damage. Where there is evidence of damage, the item shall be removed from service until repaired or replaced.

A/C powered lights, tools or equipment shall not be used inside manholes and sewer structures.

Sewer structures that have conditions indicating lockout/tagout procedures as required by OSHA regulations shall have a Job Specific Safety Plan.

Fall Protection

All employees exposed to falls of six (6) feet or more shall be protected by guardrails or by a personal fall protection system per 29 CFR 1926 Sup-Part M.

Installation and maintenance of rain gauges requires a Job Specific Safety Plan specifically addressing fall protection.

All manholes shall be guarded while open. No manhole shall be left open without proper guarding. An entry tripod is an acceptable guarding device where there is no potential for untrained or unauthorized persons to enter the immediate area of the open manhole. A pole camera manhole guard is an acceptable device for use during

pole camera inspections. A manhole guard must be used during dye testing to guard holes more than 5' deep. Cones can be used as a guard for holes less than or equal to 5' deep where the invert lines are less than 15".

Ladders

Only portable ladders, in good condition shall be used for access to an upper landing surface. The ladder side rails shall extend at least three (3) feet above the upper landing surface to which the ladder is used to gain access and be secured from falling or tipping over.

When portable ladders are used for access to an upper landing surface, the ladder shall be set up so that for every four (4) feet of vertical rise, the ladder shall extend one (1) foot horizontally at its base.

When portable ladders are used for manhole access, the ladder side rails shall extend at least three (3) feet above the manhole frame and shall be used at the best angle possible.

Manhole steps in good condition or a ladder may be considered for primary access to manholes. However, an approved mechanical system shall be used for fall protection and non-entry rescue.

Safety Plans

Job Specific Safety Plans

If a situation arises on a project that is not covered by existing RJN safety policies and procedures, a Job Specific Safety Plan shall be developed by the location management and signed by the location safety representative and the project manager.

Job Specific Safety Plans shall state specific reasons for the plan, as well as detailed procedures for all safety aspects of the work to be performed under the plan. The Job Specific Safety Plan shall be on site and strictly adhered to for the duration of the activity covered by the plan. The Job Specific Safety Plan shall then be kept on file with all other applicable job documents per RJN procedure.

Location Specific Safety Plans

A location Principal in Charge, for good reason, through the development of a written Location Specific Safety Plan, may alter any RJN policy or procedure contained in this manual. The Location Specific Safety Plan shall be signed by the location Principal in Charge and approved by the President/CEO in writing.

Location Specific Safety Plans shall state specific reasons for the plan, as well as detailed procedures for all safety aspects of the work to be performed under the plan. Location Specific Safety Plans shall be kept on file with the location's safety representative.

General Safety and Health Guidelines

Fitness for Work

Employees shall come to work ready and fit to perform their respective duties. Anyone who is deemed unfit to perform those duties will be refused work.

Potable Water

An adequate supply of potable water shall be provided at worksites.

Injury/Incident Reporting

If you are aware of any unsafe practice or condition in your workplace, notify your field manager and/or safety representative immediately. All injuries and incidents shall be immediately reported to the field manager and/or safety representative. Near-miss incidents shall also be reported so that measures can be taken to prevent future incidents. The field manager and/or safety representative will require written incident reports (RJN Form IR-100) within 24 hours of the incident from each participant or observer of the event if it:

- is reportable under Worker's Compensation.
- resulted in an injury requiring medical treatment beyond first-aid.
- did not involve injury but had the potential to cause injury.
- resulted in property damage or loss

The incident reports shall be immediately sent to the location Principal in Charge and the Director of Human Resources for further distribution to all location safety representatives.

The importance of this procedure cannot be over-emphasized. Even though the incident or injury may seem insignificant, complications could develop and lessons may be learned. Proper, timely, accurate and complete documentation can assist greatly in the administration of claims, improve safety procedures and policies and protect and support the rights of both RJN and its employees.

Incident Investigations

After review of all written incident reports, RJN corporate management may require a comprehensive incident investigation. All location personnel are required to cooperate fully with any authorized incident investigation.

Crew Size

The minimum crew size for any RJN field work is two (2) people. It is recognized that in some instances RJN field work can be performed by a crew of one person (ie. telemetry equipment, troubleshooting, battery swaps). However, for any task that will be performed by less than the minimum crew size, a Job Specific or Location Specific Safety Plan must be prepared and kept on file.

Drugs and Alcohol

It is understood that the influence or use of drugs and/or alcohol during work hours is absolutely prohibited. RJN demands a safe workplace that is free from the effects of alcohol, drugs and controlled substance use. Employees are expected to report to work in a mental and physical condition that enables them to perform in a safe and satisfactory manner.

Any employee who is injured in conjunction with the use or influence of drugs and/or alcohol will be subjected to the company's disciplinary action policies.

Post-incident drug testing shall be done per Appendix 2 of the RJN Personnel Practices Handbook.

Abuse of over the counter drugs and/or prescription drugs during working hours is prohibited.

Employees engaged in field work shall report to the field manager any medication they are taking that may create a safety risk to themselves or others.

All employees whose job responsibilities may include driving a vehicle for company business are subject to:

- Pre-employment drug and alcohol testing
- Post-incident drug and alcohol testing
- Reasonable suspicion drug and alcohol testing

Concealed Weapons

RJN does not and shall not allow weapons on company property. This policy also includes all RJN vehicles, field job locations and employee personal vehicles while on company property or on job sites.

Housekeeping

A clean and organized work location and company vehicle is a safe and productive one. It shall be the responsibility of each employee to keep his work locations and vehicles clean and orderly.

Equipment Safety

No equipment or tool shall be used, at any time, with a mechanical or other problem that would compromise the safety of the user. All equipment and tools shall be inspected before their use to ensure proper and safe operation and condition. Any piece of equipment or tool that is not in proper working order shall be tagged out of service and not used until it has been properly repaired. The field manager will be immediately informed of any equipment or tool problems.

First Aid/CPR

Basic first aid is defined as assessments and interventions that can be performed by an employee with minimal or no medical equipment. Basic first aid may be given by any first aid trained employee with a valid first aid training certificate. Common sense, however, shall be used. Never attempt skills that exceed your training. Don't move a victim unless their life is in danger. Always ask a responsive victim for permission before giving care. Once you have started first aid, do not stop until someone with equal or more emergency training takes over.

All first aid incidents shall be immediately reported to the field manager and/or safety representative.

All RJN office and warehouse locations, as well as all RJN vehicles, shall have a basic, well maintained, first aid kit in good condition.

All RJN warehouse locations, as well as all RJN vehicles, shall have a well-maintained eye wash station.

All RJN warehouse locations, as well as all RJN vehicles will be supplied with an adequate quantity of cleaning and antiseptic products for employee use.

CPR may be given by any CPR trained employee with a valid CPR training certificate. The above common sense rules for first aid incidents apply equally to CPR incidents.

For any situation beyond basic first aid, any employee may call for an ambulance or have the affected employee taken to a local emergency room or occupational health provider. All guidance from the involved medical and health professionals shall be followed.

Lifting

Do not attempt to lift beyond your strength. If the load is too heavy, get help or use a mechanical device. When lifting, knees should be bent and back should be

straight to avoid back strain. Stretching and flexing before heavy lifting is strongly encouraged.

Smoking

Smoking is expressly forbidden in RJN facilities and in RJN vehicles. Smoking is strongly discouraged at RJN production sites, RJN customer locations and on non-RJN controlled property.

Blood Borne Pathogens

This policy applies to all employees and is designed to protect them from occupational exposure to blood borne pathogens and to ensure prompt medical assistance when exposure occurs. An exposure incident is defined as a specific eye, mouth, other mucous membrane or non-intact skin contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

The potential for occupational exposure to blood borne pathogens exists in sewers, especially at, or immediately downstream of, a medical or embalming facility. Exposure may occur when entering a sewer and/or when handling equipment that has been in contact with untreated wastewater at these sites.

Any employee involved in sewer operations, especially at, or immediately downstream of, a medical or embalming facility is subject to exposure and shall follow these procedures:

- When entering known or suspect sites, employees will wear appropriate PPE.
- Employees with unhealed cuts, sores or abrasions will not enter subject manholes.
- Employees will wash their hands immediately, or as soon as feasible, after removal of PPE. Cleaning and antiseptic products will be used as an interim measure until hands can be washed with soap and water. Crews will be supplied with cleaning and antiseptic products for field use.
- Employees will wash hands and any other exposed skin with soap and water, and/or flush mucous membranes with clean water immediately, or as soon as feasible, following contact with blood or other potentially infectious materials.
- Decontamination, disposal and laundering shall be carried out immediately, or as soon as feasible, after work is completed in suspect sites. Durable equipment and protective equipment shall be cleaned thoroughly and treated with a disinfectant. Articles of exposed clothing shall be machine laundered separately from other clothing, using hot water and bleach.

All employees who perform sewer system entry and/or the handling of equipment that has been in contact with untreated wastewater will be offered the hepatitis B virus (HBV) immunization unless the individual has previously received the HBV vaccination series. Personnel who decline the immunization will sign the RJN declaration statement declining the vaccine.

Fire Protection

Only approved safety cans shall be used for the storage and handling of flammable and combustible liquids. All safety cans shall be labeled correctly.

No more than 25 gallons of flammable or combustible liquids shall be stored in an RJN facility outside of an OSHA compliant approved storage cabinet.

All field vehicles shall be equipped with a readily accessible and permanently mounted fire extinguisher with an Underwriters' Laboratory rating of 5 B:C or more.

All field vehicles shall be equipped with an approved metal container with a cover that shall be used for the disposal of flammable waste, including spent smoke bombs.

Smoking is prohibited during refueling operations.

In an RJN warehouse or field location storage facility, a fire extinguisher, rated not less than 2A, 10 B:C, shall be provided for each 3,000 square feet of protected area. Travel distance from any point of the protected area to the nearest fire extinguisher may not exceed 75 feet.

Fire extinguishers shall be conspicuously located and readily accessible at all times. They shall be inspected monthly and maintained in operating condition.

Training shall be provided for the use of fire extinguishers.

Safety Administration

Safety Meetings

Monthly safety meetings, facilitated by the field manager or his designee, shall be held at each work location. These meetings are for the purpose of addressing any safety concerns that may evolve in the course of every day work. Input from employees concerning safety shall be discussed during the meeting with the purpose of informing everyone concerned.

Should any safety concern present itself at any time, the field manager and/or safety representative shall be immediately informed and a special meeting may be held.

An attendance record and brief statement of topic(s) shall be kept of all safety meetings conducted and a copy shall be kept by the safety representative and shall be sent to the Director of Human Resources.

Safety Inspections

At any time, an impromptu inspection may be made by RJN management or an appointed representative. All location personnel are required to cooperate fully during any authorized inspection.

Location Safety Committee

It is strongly recommended that each RJN location establish a safety committee consisting of representatives from field staff, as well as management staff. The safety committee should meet at least once per calendar quarter. The primary function of the safety committee is to apply their experience and technical knowledge to the reality of RJN operations at their location in order to make improvements in their safety performance, as well as to make specific recommendations to corporate management to improve safety for all employees.

Corporate Safety Committee

The RJN corporate safety committee shall consist of at least one safety representative from each location and at least one professional engineer with project management experience. The corporate safety committee should meet at least once per calendar year. The primary function of the corporate safety committee is to review and update the corporate safety manual, and to apply their experience and technical knowledge to the reality of RJN operations at all locations in order to make improvements in their safety performance, as well as to make specific recommendations to corporate management to improve safety for all employees.

Hazard Communication

A copy of the RJN Hazard Communication Program, all Safety Data Sheets (SDS) and location chemical inventory list shall be made available upon request to all employees, their designated representatives, subcontractors and emergency responders.

A list of all hazardous chemicals used at an RJN location or job site shall be maintained by that location's safety representative. The list shall be included in every SDS book at that location.

A book containing the location's chemical inventory list, all Safety Data Sheets for the chemicals used by the location and a copy of the RJN Hazard Communication Program shall be maintained in each RJN location, field office, field vehicle and warehouse.

The safety representative shall be responsible for ensuring that all Safety Data Sheets for the chemicals used by the location are accurate

All containers of hazardous chemicals shall be properly labeled and marked. The label or marking shall contain, at a minimum, the name of the chemical and the appropriate hazard warnings.

All employees shall be trained by the field manager, safety representative or his designee on how to read and interpret Safety Data Sheets, labels, warnings, color-coding and signs affixed to containers that they might handle.

Before assigning any employee to a task requiring the use of hazardous chemicals, that worker shall receive chemical use and hazard communication task training which involves the field manager, safety representative or his designee reviewing the information contained in the Safety Data Sheets, including first aid procedures, emergency procedures, and required personal protective equipment.

All shipments that are received with hazardous chemicals shall be checked by the field manager, safety representative, or his designee, to ensure that all correct Safety Data Sheets were included. Any Safety Data Sheet not included in the location's chemical inventory and SDS manual shall be added to both by the safety representative.

Employees shall always read the labels on the chemical's packaging as well as the Safety Data Sheet before use and follow the instructions recommended therein.

Storage and handling of chemical containers shall be in compliance with the manufacturer's handling and storage requirements.

If you have any questions about the storage or use of hazardous chemicals contact the safety representative or the manufacturer of the chemical for additional information.

OSHA Information

Recording Occupational Injuries and Illnesses

The Director of Human Resources shall maintain the official RJN OSHA 300 logs for all locations per 29 CFR 1904.32.

Reporting Fatalities and Injuries to OSHA

The location Principal in Charge shall, within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three (3) or more employees as a result of a work related incident, report the fatality/multiple hospitalization by telephone to OSHA at 1-800-321-6742.

OSHA Postings

The safety representative shall ensure that the OSHA workplace poster *Job Safety and Health Protection* with appropriate state information shall be prominently displayed at all permanent and field locations where employees congregate.

The safety representative shall ensure that the annual summary of injuries and illnesses per OSHA 29 CFR 1904 shall be posted where employees congregate at all permanent and field RJN locations from February 1 of the year following the year covered by the records and keep the posting in place until April 30. The Director of Human Resources shall provide the annual summary to the safety representative by February 1, of the year following the year covered by the records.

OSHA Inspections

When an OSHA inspector presents himself on an RJN jobsite or office/warehouse location, the field manager, safety representative or designee shall immediately be informed.

The field manager and/or safety representative shall immediately respond in person to the inspection location and implement RJN's inspection policy. If the field manager and/or safety representative cannot immediately respond to the inspection location, he shall appoint a trained designee to respond.

The field manager, safety representative, or his designee, shall verify the OSHA inspector's credentials and determine the scope and purpose of the inspection.

The field manager, safety representative, or his designee, shall request from the OSHA inspector a reasonable amount of time for the location Principal in Charge to respond and attend the inspection.

The field manager, safety representative, or his designee, shall inform the location Principal in Charge of the OSHA inspection. The location Principal in Charge shall make every effort to immediately respond to the inspection or assign his designee to do so.

General Guidelines for an OSHA Inspection

- ◆ Document the inspection with video, pictures, audio, and written notes.

- ◆ Never leave the inspector alone during the inspection.
- ◆ Employee interviews are allowed if they do not jeopardize safety.
- ◆ Only one (1) management interview is authorized; separate management interviews are not authorized.
- ◆ Never conduct demonstrations for the inspector.
- ◆ Never provide estimates for the inspector.
- ◆ Do not provide company documents to the inspector without approval of the location Principal in Charge, unless the inspector has a warrant for them.
- ◆ Always ask for exact citations and abatement information from the inspector.
- ◆ Never volunteer any information to the inspector.

CONFINED SPACE ENTRY CERTIFICATIONS



Two Clover Services

This document serves to verify that the following individuals received Confined Space Certification training on Wednesday November 26, 2014.

Please print and initial by your name:

Charles D. Barks	CB	Kevin Hayes	KH
David Brant	DB	David Treas	DT
David Emmerling	DE	Elizabeth Aguin	EA
William D. Bluff	WB	Karen Rico	KR
Michael Bray	MB	Matthew Horn	MH
Daniel Jackson	DJ	Byron Anderson	BA
John Becker	JB	Joseph Cottrell	JC
Derek Schwab	DS	Lauren Tabor	LT
Bruce Staggs	BS	Robby Oliver	RO
Rick Brodner	RB	Johnny Bradshaw	JB
Donald Robinson	DR	Connor Menwood	CM
Ryan Rogers	RR		
James Pymale	JP		
Joseph Colley	JC		
Margaret Fryer	MF		
Cathy Pappas	CP		
Rick Brodner	RB		
Kerry Briggs	KB		

Certified by,

John K. Bennett

V.P. Two Clover Service

Daniel Jackson, PE
John D. Becker
Michael Bray
Trevor Emmerling
Rick Brodner
Elizabeth Aguin, PE
Margaret Fryer
Karen Rico, PE





ADS LLC / ADS Environmental Services hereby acknowledges

Dennis McPhearson

as being certified and having completed *Confined Space Entry* training.

This certification is valid until 15 February 2017.



ADS LLC / ADS Environmental Services hereby acknowledges

Joe Freitas

as being certified and having completed *Confined Space Entry* training.

This certification is valid until 28 December 2016.



ADS LLC / ADS Environmental Services hereby acknowledges

Michael Lopez

as being certified and having completed *Confined Space Entry* training.

This certification is valid until 29 March 2017.

QUALITY ASSURANCE AND QUALITY CONTROL PLAN

The RJN Quality Assurance and Quality Control Plan is based on RJN project team members adhering to our Standard Operating Procedures and supported by senior level reviews at key milestones throughout the project. The Table of Contents for our operational Standard Operating Procedures illustrates the detailed processes and protocols that must be followed for each key project task.

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RJN Standard Operating Procedures TOC

METER INSTALLATION/SETUP

All flow metering and rain gauge equipment will be installed according to the manufacturers' recommendations by highly trained RJN technicians. **Equipment preparation** following manufacturer specifications prior to deployment verifies, assembles, and programs the entire monitoring system, including the flow meter, band, sensors, and telemetry, making the installation "plug-and-play". The meters are programmed with the correct pipe diameter, sensor configuration, and meter information, the telemetry system is configured, and mounting bands and sensors are assembled.

The **Triton flow meters** will be mounted inside the manhole. The sensors are typically installed on a thin metal ring for smaller pipe applications. For larger pipe installations more than 42 inches, the sensing equipment is generally installed on a flange or partial band. For some larger or full flowing sites, installations may need to occur at night when flow levels are at a minimum. The cabling is secured to the manhole walls and attached to a data logger at the top of the manhole for easy access. The **ECHO meters** will be installed according to manufacturer specification near the top of the manhole; the self-contained mounting bar and unit contain integral bubble levels to facilitate proper installation.

Prior to leaving the site, each flow meter will be configured and activated at the site. All equipment will undergo a series of diagnostic tests and calibrations/verifications to validate and confirm the meter data and to ensure that

the installed monitoring network is fully functional. **Rain gauge equipment** will be installed in accordance with manufacturer recommendations following RJN installation standards and procedures. Proven processes ensure that the installation is secure and the equipment is protected minimizing the potential for downtime. Specially constructed mounting configurations are used to facilitate leveling of the tipping bucket and reduce the potential for dislocation from tipping over or separation of components during storm events.

Telemetry will be established at each site using a “whip-it” style antenna. For paved surfaces, this requires a narrow saw cut to insert the antenna. Communications will be established and verified prior to leaving the site.

RJN standards require that 25% of the installation sites be audited by the Field Operations Manager or Project Manager following documented QA/QC procedures. The site audit includes verification of silt topographies and odd shape pipe measurements.

CALIBRATIONS/VERIFICATIONS

To “calibrate/verify” an instrument or piece of equipment is to check, adjust or standardize it by comparing it with an acceptable model. Equipment calibration/verification refers to the standardization of equipment settings. Meter equipment verifications are performed at the manufacturing facility and at the RJN Flow Meter Lab.

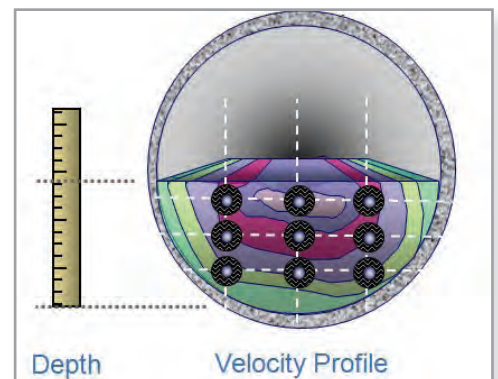
Field verification/calibration is the general practice of obtaining field measurements for use in comparing results to the flow monitoring device readings. “Confirmations” or “verifications” are terms used to distinguish sensor calibrations from hydraulic calibrations. **Flow rate accuracy** is a function of evaluating and validating a meter’s calculated results against a manually derived hydraulic profile for each location. With a confirmed cross-sectional area of the pipe, obtaining a hydraulic profile involves:

- 1) Manual depth measurements
- 2) Velocity profile (a set of velocity readings used to derive an average velocity), and
- 3) Silt level measurement

All deployed flow meters, level only meters, rain gauges, and surcharge gauges will be calibrated either in-situ upon installation or prior to deployment at our Flow Meter Lab. Additional in-situ verifications will also be performed on an as-needed basis for operation and maintenance (O&M) purposes as determined by routine System Status Monitoring protocols. In addition to the initial and as-needed verifications, regular in-situ verifications for all flow meters and rain gauges will be performed as preventative maintenance measures.

SENSOR CONFIRMATIONS

Sensor confirmations compare manual measurements and sensor values to ensure that each sensor is recording reasonable data. Confirmations are obtained in-situ at the sensor location and used to determine if the sensors are recording within acceptable accuracy tolerances.



HYDRAULIC VERIFICATIONS

Hydraulic verifications, sometimes referred to as hydraulic profiles, compare a measured flow rate to the flow meter's calculated results; this consists of a manual depth reading and a velocity profile to calculate the flow rate using the Continuity equation. A velocity profile is obtained by measuring the instantaneous velocity at pre-defined depths; these measurements are integrated to derive an average for comparison to the meters' calculated average velocity.

FLOW METERS

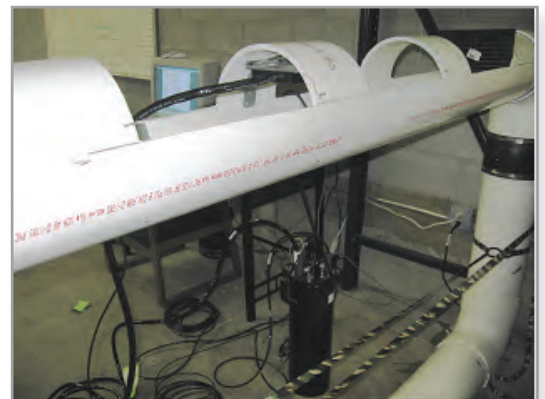
Once the "settling in" period (flow stabilization period) is complete, preventive maintenance verifications will be scheduled for each installed flow meter on a 90-day cycle. Each verification is typically scheduled such that verification measurements are done at various times of the day, including during early periods of morning lows (night-time), during the daily peak flow period (dry-day peak-flow), and during the afternoon flow period (ADF verifications). Additionally, RJN will attempt, as reasonably feasible, to capture one wet-weather flow verification/calibration measurement at each permanent flow metering site during the course of the metering period. Often, flow or other conditions at metering sites during wet-weather conditions are too dangerous to allow for man-entry and independent measurement capture, and in such cases the cause for not obtaining a wet-weather verification will be documented.

For each in-situ verification, a Data Analyst will be online and in communication with the on-site field crew during the field measurement. Depth and velocity sensors will be fired in-situ immediately after field measurements are taken. All instrument and manual measurements will be recorded on the field calibration/verification log. Where multiple velocity profile readings are taken, the location of each velocity measurement in the flow profile will also be recorded. Upon conclusion of the field measurement process, the Data Analyst will compare manually collected field measurements against the instrument readings to evaluate whether meter readings are within acceptable verification parameters (i.e. + 0.75 inches depth, and + 0.5 fps velocity).

All flow meter verification measurements will be taken in-situ and will consist of a depth measurement and one or more velocity measurements. More than one velocity measurement will be taken where the combined depth of flow and pipe diameter (i.e. the hydraulic cross-section) indicates that the velocity profile is significant enough to affect individual measurements taken within the cross-sectional area of the flow. In such cases, multiple velocity measurements will be taken to establish the velocity profile.

Velocity profile measurements will be taken with a portable insertion Hach velocity meter. Depth measurements will be taken by measuring depth of flow utilizing the air-depth-of-flow or AIRDOF technique. This technique measures the airspace above the flow as AIRDOF and then calculates the actual Depth of Flow (DOF) based on the known diameter of the pipe. This methodology more accurately measures actual flow depth because the measuring device is never inserted into the flow.

Verification/calibration measurements will be superimposed on the flow meter scattergraph for the flow metering site to evaluate whether the measurements fall within the scattergraph, and the field measurement's relation to the Best Fit Curve.



RJN Flow Meter Lab

RAIN GAUGES

All rain gauges will be calibrated at the RJN Flow Meter Lab prior to deployment. All installed rain gauges will be field calibrated on a 90-day cycle. Rain gauges will be field calibrated in accordance with documented manufacturer procedures. For Rain Alert II rain gauges, the procedure consists of pouring a known volume using a graduated pipette and counting rain gauge tipping bucket tips associated with known volume. The verification measurements will be collected by the Data Analyst and compared to the field measurements to validate that the instrument data is consistent with the field measurements. For the Rain Alert rain gauges, the verification/calibration parameter used for comparison is 10 tips for 10 ml pour-in.

SURCHARGE GAUGES

Surcharge gauges will be calibrated in the RJN Flow Meter Lab prior to deployment. Surcharge gauge verification typically consists of installation of the depth sensor in a known depth of water, and comparing the instrument reading to the known depth. For ultrasonic sensors, the distance from the sensor to water level will be measured.

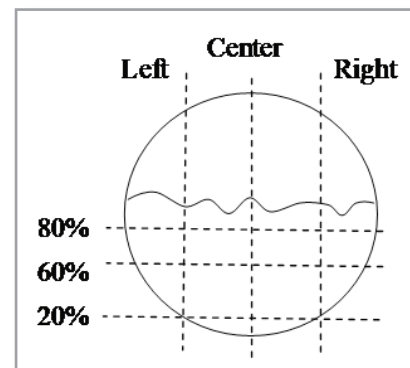
Where surcharge gauges are deployed, surcharge gauges will be calibrated in-situ on a 90-day cycle. In-situ field verification measurements will compare the field measured depth to the instrument depth immediately following the field measurement.

OBTAINING IN-SITU VERIFICATION MEASUREMENTS

Velocity profiles are obtained using an electromagnetic Portable Velocity Meter (PVM) by Hach, which measures an approximate 3-inch diameter area around the probe. The number of measurements for each profile is automatically determined by the GATAR hand-held inspection tool.

MEASUREMENT PROCEDURES

- Search the flow for the “peak velocity”. This measurement most commonly may be at the “Center 80%” location. However, depending upon hydraulic and construction characteristics, it may not be the “Center 80%” location.
- Record reading at the “Center 80%” location of the flow, if as previously determined that this reading location and the “peak velocity” location are the same then enter this value and continue
- Record PVM readings at fixed locations; a specific algorithm will be used to determine where the reading should be measured
- End the hydraulic verification/calibration by returning the same location in the flow stream where the Beginning Peak Velocity Reading was found. This value is the Ending Peak Velocity Reading.



MEASURING SILT LEVELS

Varying silt levels will impact the cross-sectional area which is used to calculate the flow rate. Silt levels are recorded during the site visit during each verification. When silt is introduced or “washed” away, the cross-sectional area will change supporting the need for routine site measurements. For large silt deposits or varying silt levels, a Silt Topo is recorded during the site visits.

VERIFICATION MEASUREMENT DATA READINGS/DATA

- Date/time
- Portable Velocity Meter (PVM) serial number
- Measurements
 - Depth of flow in pipe, from bottom of the pipe to the surface of the flow including silt
 - Depth of deposition/debris (silt). The type of debris is documented
 - Point velocities locations based on a percentage from the bottom of the pipe

FIELD VERIFICATION FREQUENCY

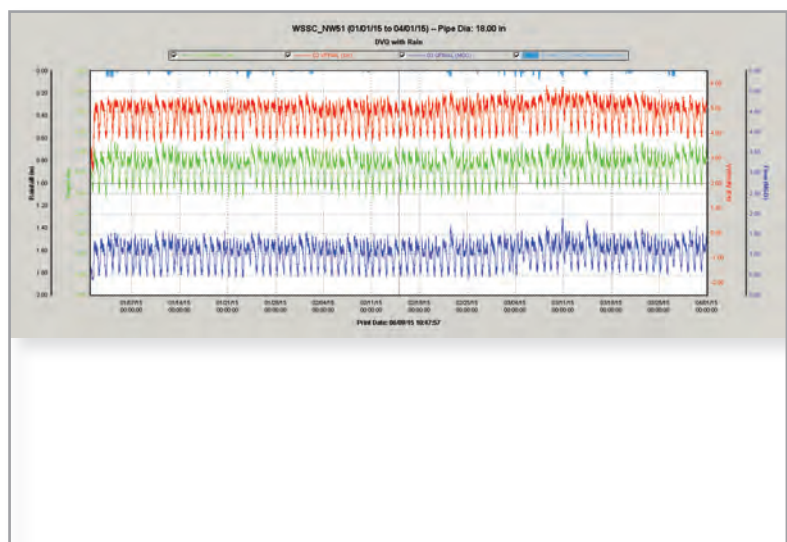
Hydraulic verifications/calibrations, at a minimum, are obtained at installation, at regularly scheduled intervals to ensure the flow rates are consistent, before and after equipment maintenance, and upon removal.

VELOCITY PROFILES, DATA QUALITY VERIFICATION, AND FLOW BALANCING

Ensuring flow data quality is the primary consideration when RJN undertakes a flow monitoring program. Whether flow data is required under a Consent Order or is needed for hydraulic modeling, planning programs, I/I evaluation, CMOM programs, rehabilitation performance, or as the basis for billing services, we know that it must provide an accurate representation of system performance. Using 35 years of experience, RJN has developed proven data collection and analysis processes, tools, and procedures that result in high-quality, representative data.

- Written SOPs are the basis for flow monitoring field and data processing services
- Flow data analysis is performed/managed by experienced data analysts that are required to complete a stringent apprenticeship program focused on specialized analysis procedures (approx. 18 months)
- RJN field inspectors complete rigorous in-house training directed at installing metering equipment and taking verification measurements; all are required to maintain OSHA-compliance confined space entry certifications
- RJN data management platforms include the web-based Telog Enterprise Client data management application and our internally-developed RPM system to manage and document site visits, maintenance, and conduct hydraulic analysis

The diagram to the right illustrates the process work flow that inherently drives our QA/QC efforts. The RJN data processing, editing, and analysis procedures assure that the depth and velocity data is within 10% of the usable verification data. Our quality control practices also include detailed logging of our field and data editing activities.



FOLLOW THE HIGHEST INDUSTRY STANDARDS

Standard RJN processes and procedures for flow monitoring are largely industry-recognized standards that have been developed over the last 35 years. Where RJN may differ is in the use of software tools to improve field and data handling efficiency, data quality, equipment uptime, and the incorporation of Process Quality Standards. These include data handling tools, frequency and timeliness of response, methods of communication, and quality review milestones. Nonetheless, accurate, quality data must meet three primary conditions:

1. DATA MUST BE AVAILABLE.....

Data availability is synonymous with meter uptime. Uptime is generally defined as the percentage of usable depth and velocity points over a monthly period. Industry standards range between 90%–95% uptime. RJN requires uptime tracking as a standard component of our flow monitoring services. The data review process tracks and determines meter uptimes as a component of the review.

2. DATA MUST BE REPEATABLE.....

For every depth, there is a unique and independent velocity. Verifications that do not appear to line up well with the data should only be regarded as indicators that a sensor may need to be further evaluated. The most compelling indicator for determining whether a sensor is “off” is an inconsistent relationship between the velocity and depth. This relationship must be repeatable, even when hydraulic anomalies occur.

Sensors must perform in harmony; the depth and velocity must each diverge proportionately, though not necessarily in the same direction. A diversion by only one sensor is an indicator that either a sensor is recording inaccurately or that a rare and unique hydraulic situation may exist.

In general, a consistent and repeatable trace with a consistent and repeatable relationship between the depth and velocity sensors gives strong evidence that the sensors are performing adequately. This is also independent of any single verification point that may not line up sufficiently. RJN data “corrections” are intended to maintain a consistent and repeatable trace for each sensor.

REPEATABILITY INDUSTRY STANDARDS

Scattergraph analysis, flow balancing and flow rate comparative analysis are techniques used by only a few qualified flow service providers. These involve network relational analysis, identifying unique hydraulic signatures, and comparisons to theoretical, depth-derived flow rate equations such as Manning’s or Colebrook-White. A firm hydraulic understanding on how to interpret these analyses is required to validate acceptable repeatability results.

3. DATA MUST COMPARE TO A STANDARD.....

Flow meter-derived flow rates must fall within acceptable tolerances to an independent standard such as a hydraulic verification or other highly accurate meter (mag meter) or through flow balancing. RJN “adjustments” are intended to offset traces such that they fall within acceptable industry accuracy standards.

ACCURACY INDUSTRY STANDARDS

Industry standards for accuracy generally require the meter calculated flow rate to be within 5%-10% of the hydraulic verifications/calibrations obtained over time. RJN meets this standard on all projects further ensuring the meters balance within the network and against pump stations and plant-metered data.

ENSURING ACCURATE FLOW RATES

For gravity sewers, RJN calculates flow rates using the Continuity equation:

$$Q = V_{avg} \times \text{Area}$$

This calculation is based on an accurate representation of the cross-sectional area based on pipe dimensions and silt levels along with the average velocity within a cross-section, not simply a velocity. Field verification measurements validate both the precision of the sensors and the accuracy of the calculated meter flow rate. Not only must the sensors be repeatable, they must measure the correct parameters to calculate the flow rate.

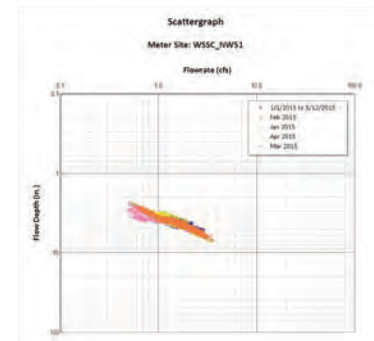
- **Precision (repeatability)** is how consistent or close together the returned sensor values are
- **Accuracy (bias)** is how far offset the results are from the correct answer

Some devices measure point velocities must be converted to an average velocity to calculate the flow rate.

The RJN process involves validating meter results by:

- Field verifications to ensure the meter sensor is **precise**
- Velocity profiles to convert point velocities or to compare average velocities to average velocities, depending on the meter sensor
- Silt measurements to account for change in the pipe cross-section areas
- Hydraulic profiles to ensure the meter's calculated rate is **accurate**

The ADS Echo Meters used for level only metering uses ultrasonic technology to record the distance from the face of the sensor to the surface of the flow. The depth of flow is easily calculated by subtracting this measurement from the distance to the pipe invert. Using as-built information provided by the City, the depth of flow will be used to calculate the flow rate using Manning's equation.



DATA MANAGEMENT QA/QC

A key aspect of RJN QA/QC efforts focuses on acquiring and developing software tools that standardize data storage and data management processes. These tools—Telog Enterprise Client, RPM, and GATAR—manage the data and have built-in quality control features:

- Telog Enterprise Client customization features are used for alerts, alarms, and algorithms to validate flow data collection values/conditions arriving from the metering equipment including out of range values, equipment that is not operating, surcharging conditions, etc.
- RJN Project Management (RPM) provides customizable features to capture and report site conditions; record field verifications; schedule and track routine field maintenance; coordinate, track and document emergency maintenance; track crew production; and route communications and notifications

- The GATAR—IOS/Android field data collection tool—uses customizable views designed with dropdown boxes to control data entry variables. The views are scripted to drive the field inspection/verification process requiring key data items to be defined prior to posting the inspection results. The inspection results are transmitted to RPM through cellular communications and available to the project management and office analysts when the inspectors leave the site.

DATA REVIEW AND ANALYSIS QA/QC

The Telog Enterprise Server provides automated data analysis tools to assist the user in identifying missing data or abnormal site data as it is collected. These tools include system alerts for missing data calls, exceeding amplitude thresholds, data deviation and compressed interval totalizing variances. These functions are intended to quickly identify sensor failures or mishaps, communication problems, and sites that are experiencing unusual performance requiring operator attention.

Data analysis alerts are recorded in system log files, announced on the Telog Enterprise Client workstations and can be forwarded to other networked workstations or digital cell phones as email or SMS messages.

The RJN data processing, editing, and analysis procedures ensure that the depth and velocity data is within 10% of the usable verification/calibration data. Data analysis includes reviewing historical data to establish trending baselines and set meter adjust meter configuration for future data collection.

DATA VERIFICATION

The goal of the RJN data review and evaluation is to ensure that quality data is produced from the flow meters. Our general philosophy is that no correction or adjustment factor can be applied to the data unless there is some field information, verification, or recognized hydraulic principal to support it.

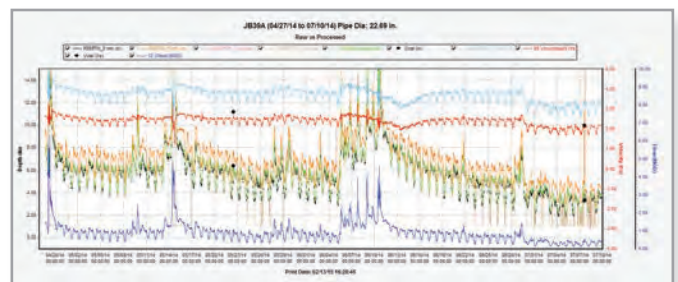
- All data is stored in “raw” form with any adjustments made in separate data entities
- Depth and velocity field verification data is plotted with hydrographs providing a means to compare all raw data with the final adjustments while having field verification as a reference

Experienced RJN data analysts review data using internally developed analytical tools and techniques to verify the accuracy and precision of the equipment/data including:

- Hydrographs
- Scattergraphs
- Flow balancing methods

DATA REVIEW AND ANALYSIS QC/QA STANDARDS

- | | |
|---|--|
| ✓ | Check data for “trace” continuity |
| ✓ | Check and document standardized evaluation process is being followed |
| ✓ | Check gross and net flow balance |
| ✓ | Adjust data based on field verifications/calibrations |
| ✓ | Check pipe diameters and meter data quality |
| ✓ | Check scattergraphs for distinctive patterning |
| ✓ | Final data review by Senior Analyst or PM |
| ✓ | Monthly data delivery and online data posting |



Verification points can be viewed on scattergraphs and hydrographs. Data is analyzed for maintenance problems and predictive failure. Scattergraphs of depth vs. velocity are reviewed to determine whether distinctive patterns affecting data quality can be identified. Data can be viewed in scattergraph format using depth, velocity and flow rate values such as Dprocessed and Vprocessed or Dfinal and Vfinal. The theoretical capacity curves based on Manning's curve, Best-Fit curve, and Colebrook-White can be superimposed.

Unique hydraulic conditions, such as bottlenecks, surcharging, suspected overflows, and excessive inflow and infiltration, are reviewed and evidence of these unique conditions will be included in final reporting.

Original data collected from remote RTUs or imported to the database, is retained in raw form and unchanged. Enterprise Client provides tools to enable editing of computed measurements including a history log of edits providing an audit trail and the ability to “back-out” or reverse any prior edits.

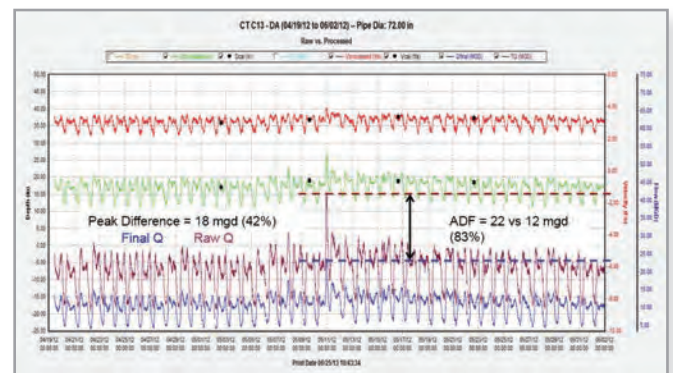
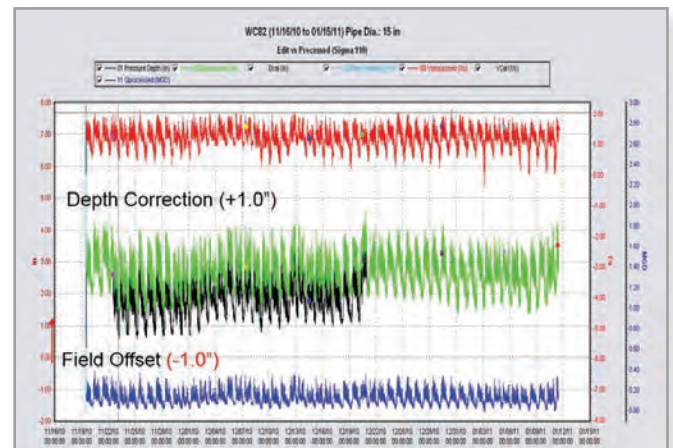
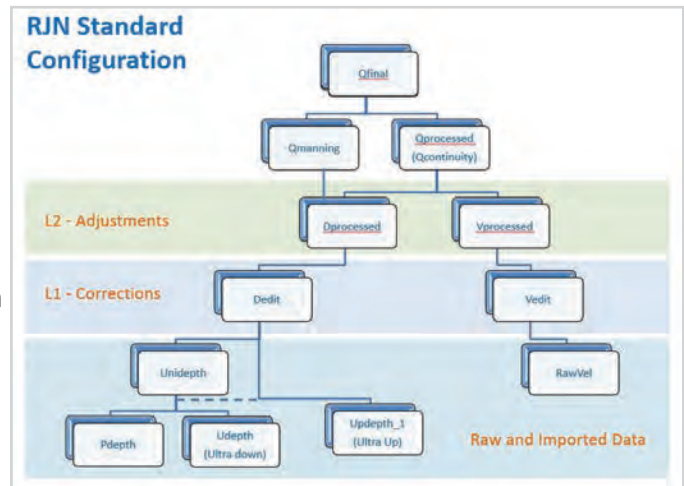
Enterprise Client permits editing of single data points, correction of a range of data and the re-computation of the entire history of a computed measurement and any dependent measurements.

DATA EDITING

Data editing is the process of applying “corrections” and “adjustments” to the raw flow data that results in accurate flow rates.

Corrections include offsets and factors applied to the depth and velocity readings to maintain consistency in the data traces. These edits may be necessary to correct offsets introduced when the sensors are rotated, equipment is replaced, or silt levels have been modified. Any unusual pops, drops, or sensor deviations are “corrected”. The verifications are applied to initially set the depth and velocity range and to generate flow rates using the Continuity equation.

Adjustments include offsets and factors applied to the depth and velocity traces based on comparisons to the manual verifications. After sufficient verifications have been received, verifications and flow balancing are used to “adjust” the depth and velocity traces. Data plots are generated that include the raw data, edited data, and verifications to evaluate and validate the edited data. Manning's and Continuity equations are also compared to evaluate hydraulic anomalies.



FLOW BALANCING

Flow balancing is one of the most critical components of the data quality process. The purpose of flow balancing is to add yet another assurance that the flow meter network is producing reliable, verifiable, and accurate data.

Regardless of any applied corrections and adjustments to the data, the flow rates throughout a flow metering network must conform to the basic principles of the conservation of energy; flow into a node must be equal to flow out of the node. Specifically, the network of meters must each balance as the flow traverses from the top of the system to the bottom.

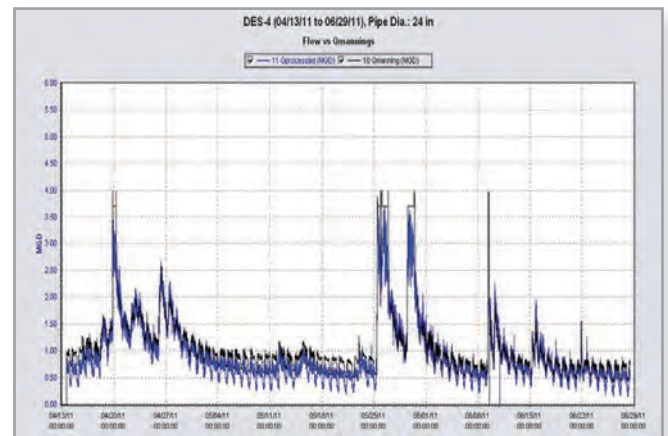
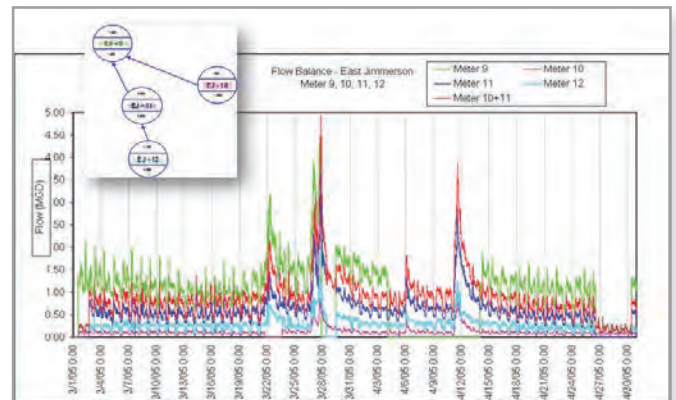
Each upstream meter (including multiple inputs) should result in equal or less flow than the downstream recipient meter. If not, one of two conditions exist.

- (1) The data is incorrect, or
- (2) Flow is being released between the meters through a bypass, relief line, or possibly an overflow

Flow balancing involves computing flow quantities for different points in time and analyzing the consistency of downstream readings to upstream readings. Flow rates should balance in dry- and wet-periods, through the full range of flows and for all periods.

When an imbalance occurs, the data must be reanalyzed and adjusted within the margin of available field verifications. Data is never be adjusted just to “make it fit”, without field verifications to justify it.

Balancing also includes an **analysis using alternative equations** for calculating the flow rate. By comparing the flow rates using the Manning’s equation (theoretical) and the Continuity equation (actual), the corrections and adjustments to the data can be validated. Under free-flow conditions, flow rates calculated using the Continuity equation can never exceed Manning’s. If they do, either the site is influenced by upstream head pressure or the data is not properly adjusted.



LOG REPORTS

ELECTRONIC DOCUMENTATION

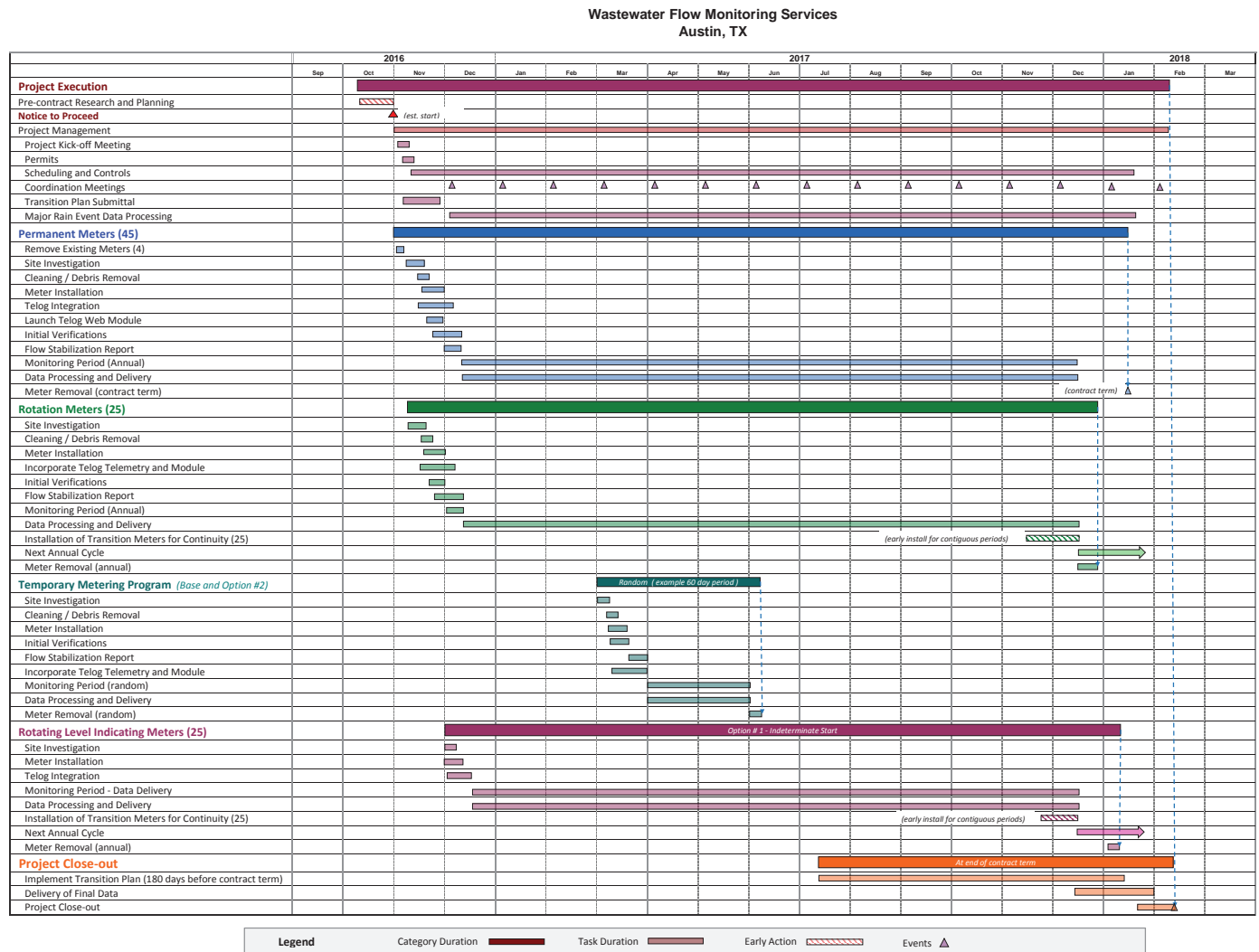
RJN captures all data including supporting maintenance and service logs in digital format allowing all log data to be readily available to the City. Electronic files include information such as investigation site reports, verifications, maintenance logs, network flow diagrams, data uptime charts, and status reports for each site.

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TAB 12
SCHEDULE

TAB 12

PROPOSED SCHEDULE



TRANSITION PLAN

RJN currently maintains the City of Austin's Crosstown Long-term Flow Monitoring Program. This long-term flow monitoring program involves maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters. RJN will work with the selected consultant to ensure a smooth transition. The transition will include:

- 1. Extension(s)**—RJN will work with the City of Austin on any extensions of the current contract on a month-to-month basis to cover any delays in finalizing a contract with the new flow monitoring consultant
- 2. Post-Selection Training Workshop**—After selection and prior to notice to proceed, RJN will host a 4-hour workshop with the City of Austin and their selected flow monitoring consultant. The workshop will cover all aspects of the Flow Monitoring Program including: current sites and locations, site security issues, equipment removal, schedule, data deliveries, and the Telog database.

3. **Equipment Removal**—Upon written approval by the City of Austin, RJN will remove all installed flow monitoring and associated equipment
4. **Telog Database**—Transmission of the data to the FTP site in the Telog EDF format. RJN will ensure the configuration of Telog is up to date and complete.
5. **Project Data Information/Sheet**—Within 30 days of equipment removal, RJN will deliver site related information such as site reports, flow diagrams, etc.
6. **Final Data Deliverable**—Within 30 days of equipment removal, RJN will deliver final data and monthly report. The delivery will include:
 - a. A report which identifies which sewer meter locations that have achieved 90% “up time” and accurate data and which location did not achieve the 90% up time and accurate data
 - b. Verification points for each of the FMS location collected during the month in Telog EDF format transferred to the FTP site
 - c. Processed data for 100% in Telog EDF format transferred to the FTP site
 - d. A report identifying the raw and processed data explaining what has been performed to obtain this data, including percent edited data and adjustments
 - e. Maintenance log sheets for each site

TAB 13

INNOVATIONS, COST SAVINGS, AND VALUE ADDED

TAB 13

ALTERNATIVES

For more than 40 years, RJN has been an industry leader in innovation for collection system solutions around the country. Some of these innovations have led to an increase in the quality of the deliverable and/or savings to our clients. These innovations are built into every deliverable including the Crosstown Flow Monitoring Program that has a 97.99% average overall uptime.

After careful review of the RFP, we have identified areas that may result in a cost savings to the City. These areas are identified below:

1. Continuation of Existing Metering Program—

Of the 45 permanent meter locations, RJN has been maintaining 26 of the sites for 3 years and is currently under an extension to continue through October, 2016. The timing closely coincides with the City's anticipated start of the new contract. Each of these sites has been fully calibrated and stabilized. If the City wishes to continue using the equipment that is currently installed, there would be no cost for the installation. This would cut the total installation costs for Item 2 by more than 50%.

2. Past RJN Flow Monitoring Locations—There are four other locations identified in the RFP where RJN previously installed and maintained equipment. Throughout the program, it is expected that there may be more locations previously monitored by RJN. For each of these, the investigation and installation effort would be reduced, translating to a cost savings to the City of approximately 33% of the cost for a standard installation.

3. Applying Appropriate Technologies—Page 2 of 15, Section 4.3.b Velocity Component of Flow permits a surface velocity sensor to be installed for redundancy. In certain circumstances, the surface velocity sensor may be the ideal application as the primary sensor to maximize both the

meter uptime and quality of the data. RJN has utilized this approach on the Crosstown Flow Monitoring Program on site CT-C25. At this large site, the surface velocity sensor outperformed the submersible. RJN uses the following criteria for equipment selection:

- Pipe size
- Anticipated flow ranges
- Operating principal
- Accuracy factors
- Data management requirements

4. New Equipment—Page 3 of 15, Section 4.6, all sensors and probes on flow monitoring equipment shall be new and calibrated at the beginning of the contract. RJN and ADS have an inventory of more than 800 new and used Triton+ sensors and probes that are factory-calibrated and then calibrated by RJN prior to installation. Many of these new sensors are currently installed on the Crosstown project and have been installed for months and even a couple of short weeks at some sites. Since the contractor is obligated to meet uptime and accuracy requirements, the City may consider utilizing such equipment that is certified by ADS or a certified RJN technician. Performing and meeting the requirements of the RFP in this way saves money.

5. Verification Points for Temporary Meters—Page 6 of 15, Section 5.12. For all temporary meters, the Contractor shall perform verification for each flow meter at installation, every two weeks, and at removal. RJN recommends performing four verifications within the first 30 days and then monthly thereafter or at any changes of equipment. This approach follows the frequency of review and standard service visits based on the RJN "FACTS" rating scale. The scale is based on the number of criteria that qualify; one point for each qualifying criterion:

- F—Flow rates are consistent between Q_{manning} and Q_{continuity} and balance within the network

- A–All of the data is acquired with minimal downtime
- C–Calibrations (“Verifications”) are on schedule
- T–Telemetered sites are delivering continuous data, daily
- S–Service requirements are minimal

6. Costing Unexpected Site Visits— 5.14: The City reserves the right to require the Contractor perform the emergency maintenance without additional cost to the City and 8.8: The City reserves the right to request the Contractor collect additional verification points to confirm and verify that the data is correct. There are multiple references for the City reserving the right to request the contractor to perform emergency maintenance, verifications, and polling meter at no cost to the City. This is a performance contract that requires the contractor to meet the accuracy and uptime requirements. The City may consider limiting unscheduled visits to sites that are outside of uptime and accuracy requirements.

7. 72-Hour Response Time—Page 3 of 15, Section 4.6. The contractor shall have a field crew on site within 48 hours. This turnaround time will jeopardize the City’s uptime requirement. RJN will provide the City with a 24-hour business-day response time.

8. Transition Period Monitoring—For the temporary and rotational meter periods, RJN offers to install meters at the new and approved sites prior to the removal of the installed temporary and rotational meters. RJN will offer this contiguous service at no additional costs to the City.

9. Historical Data Input—If the City has previously completed flow monitoring at a proposed site, RJN will offer to input the data into Telog and compare the data to the collected data at no additional costs to the City.

TAB 14

COMPLIANCE

COMPLIANCE STATEMENT

RJN intends to comply with all applicable rules and regulations of Federal, State, and Local governing entities as they are related to the services required to complete the flow monitoring services outlined in the City of Austin RFP EAD0128.

RJN also intends to comply with all terms documented in the City of Austin RFP EAD0128.

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AUGUST 11, 2016

A Request for Clarifications

WASTEWATER FLOW MONITORING SERVICES SOLICITATION NO. EAD0128

PREPARED FOR THE

City of Austin, Texas

Prepared by



111 W. Anderson Lane, Suite D203A
Austin, Texas 78752
(512) 451-8204

WWW.RJN.COM

Teaming Partner

ADS, LLC

August 11, 2016

Danielle Lord
Corporate Purchasing Manager
City of Austin, Municipal Building
Purchasing Office
124 West 8th Street, Room 308
Austin, TX 78701

Subject: Request for Clarifications - RJN Group, Inc.
Solicitation Number: RFP EAD0128

Dear Ms. Lord,

Enclosed is our response to the City of Austin's Purchasing Office Request for Clarifications.

Please direct all questions to our authorized negotiator, Jeff Plymale, at (972) 437-4300.

We hope this fulfills your expectations, and we look forward to working with the City of Austin.

Sincerely,



P. Jeffrey Plymale
Executive Vice President
RJN Group, Inc.

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PERSONNEL INSTALLING OR CALIBRATING METERS

As requested, this tab is to clarify those individuals that will install and calibrate the meters proposed. The following information is already included in the proposal and is repeated here for clarification.

STAFF QUALIFICATIONS SUMMARY

Team Member/Title	Experience (Years)	Relevant Experience
Jonathan Kerr <i>Equipment Manager</i>	33	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • WSSC, MD—211 meters • ALCOSAN, PA—146 meters • DC Water, DC—174 meters • MWRA, MA—220 meters • Baltimore County, MD—130 meters • Baltimore, MD—114 meters
John D. Becker <i>Field Supervisor</i>	9	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • DC Water, DC—161 meters (10" to 264" diameter, 100' deep) • Little Rock Wastewater, AR—69 meters (8" to 60" diameter) • Hot Springs, AR—65 meters (8" to 48" diameter) • Arlington Heights, IL—30 meters (24" to 84" diameter, 9' deep)
Michael A. Bray <i>Field Supervisor</i>	9	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • DC Water, DC—161 meters (10" to 264" diameter, 100' deep) • Baltimore, MD—114 meters (8" to 120" diameter) • Hot Springs, AR—65 meters (8" to 48" diameter) • Arlington Heights, IL—30 meters (24" to 84" diameter, 9' deep)
Richard Brodner <i>Field Technician</i>	6	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • Little Rock Wastewater, AR—69 meters (8" to 60" diameter) • Hot Springs, AR—65 meters (8" to 48" diameter) • Russellville, AR—28 meters (8" to 48" diameter)
Trevor Emmerling <i>Field Technician</i>	3	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • DC Water, DC—161 meters (10" to 264" diameter, 100' deep) • Hot Springs, AR—65 meters (8" to 48" diameter) • Trinity River Authority, TX—Multiple projects (up to 102" diameter) • Memphis, TN—Multiple projects (up to 96" diameter)
Cheveze Pippins <i>Field Technician</i>	1	<ul style="list-style-type: none"> • Crosstown Flow Monitoring, Austin, TX • Trinity River Authority, TX—Multiple projects (up to 102" diameter)
Dennis McPhearson ADS, LLC <i>Field Technician</i>	25	<ul style="list-style-type: none"> • Nashville, TN—100 CSO/long-term meters, 90 temporary meters • New York, NY—15 meters (60" to 120" diameter, 40' to 110' deep) • Birmingham, AL—165 meters
Joe Freitas ADS, LLC <i>Field Technician</i>	18	<ul style="list-style-type: none"> • New Orleans, LA—Temporary flow monitoring • San Antonio Water System, TX—Multiple flow monitoring programs • Crowley, LA—Temporary SCADA metering
Michael Lopez ADS, LLC <i>Field Technician</i>	2	<ul style="list-style-type: none"> • San Antonio Water System, TX—Flow monitoring and field services • Houston, TX—285 meters • Tulsa, OK—95 meters

Jonathan Kerr

Equipment Manager



Years of Experience: 33

Education

Business Management, (University of Northern Colorado, 1982)

Land Survey, (Eastfield Community College, 1985)

Windows, (North Lake Community College, 1997)

General Studies, (College of the Ozarks, 1981)

Certifications/Training

OSHA 10-Hour Safety Certification, 30-003173551

4-Hour Work Zone Traffic Control

First Aid, CPR and AED (Defibrillator)

Confined Space Entry

Self Contained Breathing Apparatus Certified

Software Expertise

Telog Enterprise Training

Telog System Training (RU-33, RS-33 Programming and Troubleshooting)

Mr. Kerr has extensive experience in flow meter equipment management, maintenance, and operations. He is the manager of the central RJN Flow Meter Lab and is responsible for calibrating and maintaining the RJN inventory of 400 flow meters. This inventory includes metering equipment from a variety of manufacturers including ADS, Hach-Sigma, FloWav, Isco, and Telog. He has worked in all phases of sewer system evaluation surveys including flow monitoring, smoke testing, physical inspection, quantification, cleaning, and closed circuit television inspection.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Equipment Manager. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Long-term Flow Monitoring Program, WSSC, Maryland—Equipment Manager. Long-term flow metering services (five-year program) for the permanent telemetric flow monitoring network consisting of 197 flow meters, 13 meter vault telemetry devices, and 18 rain gauges in sites ranging from 8" to 84".

Short- and Long-Term Flow Monitoring, DC Water, District of Columbia—Equipment Manager. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

North Area Flow Monitoring, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania—Equipment Manager. Regional flow monitoring required under consent decree involved site selection, equipment installation and maintenance, data collection, and data delivery for 146 meters in sites ranging from 8" to 102".

South Area Flow Monitoring Program, Baltimore County, Maryland—Equipment Manager. Flow monitoring program involving site selection/verification, installation, maintenance, data collection, and data processing for 130 flow meter sites and 25 groundwater gauges for a 12-month period. Sites ranged from 8" to 60".

City-wide Flow Monitoring Program, Baltimore, Maryland—Equipment Manager. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8" to 120".

Master Plan Flow Monitoring, MWH, Dallas Water Utilities, Texas—Field Supervisor. Flow monitoring services involving site verification, equipment installation and maintenance, data collection and verifications (47 permanent meters/56 temporary meters/60 days) in sites ranging from 6" to 96".

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Equipment Manager. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8" to 48".

John D. Becker

Field Supervisor



Years of Experience: 9

Certifications/Training:

NASSCO PACP/MACP Certification,
U-1113-06019286

OSHA 10-Hour Safety Certification,
28-004281188

4-Hour Work Zone Traffic Control

First Aid, CPR, and AED (Defibrillator)

Defensive Driving for Non-Commercial
Vehicles

IBAK RapidView Training

Confined Space Entry

Mr. Becker is a wastewater collection system field services specialist. He has successfully completed OSHA safety training and is proficient with inspection and data collection tasks including flow meter and rain gauge installation and maintenance, GPS survey, full descent and zoom camera manhole inspections, dye testing, smoke testing, and night flow isolations.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Flow Monitoring, TRA Tributary Areas, Fort Worth, Texas—Field Supervisor. Flow monitoring program to capture wastewater flow levels in the system tributary to the TRA Northern Region. Services included installation, maintenance, and data collection for 8 meters and 2 rain gauges for a 60-day metering period in pipes ranging from 6" to 48".

Combined Sewer Flow Monitoring Program, Arlington Heights, Illinois—Field Supervisor. Combined sewer flow monitoring program for flow to the MWRD "deep tunnel". Tasks included site investigation; installation, maintenance, monitoring, and data collection and analysis (30 meters/2 rain gauges/12 weeks). The combined system pipe sizes ranged from 24" to 84" and at some points were 9-feet deep.

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Field Supervisor. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8" to 60".

Citywide Sewer Evaluation Study, Hot Springs, Arkansas—Field Supervisor. City-wide sewer evaluation study involving flow monitoring, modeling, and condition field investigations. Flow metering involved site investigations, equipment installation/maintenance, and data QC/management and analysis (65 flow meters/15 rain gauges/60 days) in sites ranging from 8" to 48".

Wastewater Master Plan (FTW08336) Flow Monitoring, Freese & Nichols, Fort Worth, Texas—Field Technician. Flow monitoring services to collect data for the master planning involving site selection and equipment, maintenance, monitoring, and data collection and verification (46 meters/20 rain gauges/90 days) in sites ranging from 24" to 96".

System-wide Flow Monitoring, Friendswood, Texas—Field Supervisor. City-wide flow monitoring program (20 meters/4 rain gauges) to identify areas of hydraulic overloading, capacity restrictions, and excessive inflow/infiltration. Services included meter site selection, installation, maintenance, data collection, and data analysis to determine base and peak flows during various dry- and wet-weather conditions. Sites ranged from 10" to 36".

Michael A. Bray

Field Supervisor

rjngroup
40 years of collection system solutions



Years of Experience: 9

Certifications/Training

NASSCO PACP/MACP Certification,
U-1113-06019297

OSHA 10-Hour Safety Certification,
002098735

4-Hour Work Zone Traffic Control

Defensive Driving for Non-Commercial
Vehicles

Confined Space Entry

First Aid, CPR, and AED (Defibrillator)

Self Contained Breathing Apparatus
(SCBA) Certified

IBAK RapidView Training

Mr. Bray has extensive experience providing field inspections services in a variety of complex collection systems throughout the country. He has installed and monitored flow meters, and performed manhole inspections, smoke testing, and dye water flooding. He has also supervised television inspection activities.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Short-Term Flow and Rainfall Monitoring Services, DC Water, District of Columbia—Field Supervisor. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

City-wide Flow Monitoring Program, Baltimore, Maryland—Field Technician. Installation and maintenance of 114 flow meters and 20 rain gauges for an 18-month flow monitoring period. The challenging City monitoring sites ranged in pipe size from 8" to 120".

Wastewater Master Plan (FTW08336) Flow Monitoring, Freese & Nichols, Fort Worth, Texas—Field Technician. Flow monitoring services to collect data for the master planning involving site selection and equipment, maintenance, monitoring, and data collection and verification (46 meters/20 rain gauges/90 days) in sites ranging from 24" to 96".

System Evaluation and Capacity Assurance Plan (SECAP) Evaluation, Little Rock Wastewater, Arkansas—Field Supervisor. System evaluation to verify system improvements in compliance with a CAO. Services included flow monitoring (69 meters/6 months) involving site selection, equipment installation and maintenance, and data collection and analysis and InfoWorks hydraulic modeling (1,800,000 LF). Sites ranged from 8" to 60".

Master Plan Update, Fayetteville, Arkansas—Field Supervisor. Master Plan update involving flow monitoring (20 permanent meters/20 temporary meters/10 rain gauges) Services included equipment installation, maintenance, and data collection and analysis in sites ranging from 8" to 42".

Combined Sewer Flow Monitoring Program, Arlington Heights, Illinois—Field Supervisor. Combined sewer flow monitoring program for flow to the MWRD "deep tunnel". Tasks included site investigation; installation, maintenance, monitoring, and data collection and analysis (30 meters/2 rain gauges/12 weeks. The combined system pipe sizes ranged from 24" to 84" and at some points were 9-feet deep.

Siphon and DuPont Outfall Flow Monitoring, Memphis, Tennessee—Field Manager. Flow monitoring to quantify flow for a siphon and the DuPont Outfall. Services included installation, maintenance, and data collection/verification (5 meters/2 rain gauges/120 days). Sites ranged from 54" to 96" and involved monitoring of caustic flows from an industrial site.

Richard Brodner

Field Technician



Mr. Brodner brings experience with a wide range of field inspection services to support collection system evaluations. He has completed necessary safety training and is proficient with inspection and data collection tasks including flow meter and rain gauge installation and maintenance, GPS survey, full descent and zoom camera manhole inspections, dye testing, smoke testing, night flow isolations, and CCTV inspections.

RELATED PROJECT EXPERIENCE

Years of Experience: 6

Certifications/Training

OSHA 10-Hour Safety Certification

4-Hour Work Zone Traffic Control

Defensive Driving for Non-Commercial Vehicles

First Aid/CPR Certified

Confined Space Entry

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Technician. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

OU Permanent Flow Monitoring, Norman, Oklahoma—Field Technician. Permanent flow metering program to collect billing data for services between the University and the City of Norman. Services included maintenance, monitoring, and data collection; verification; and monthly data delivery for network of 18 meters in sites ranging from 6" to 36".

Flow Monitoring, Freese & Nichols, Palestine, Texas—Field Technician. Flow monitoring services provided as a subconsultant to Freese & Nichols. Services included installation, maintenance, and data management for 4 flow meters for a 60-day metering period.

Olness-Lackland AFB Flow Monitoring, Bake Engineering, San Antonio, Texas—Field Technician. Flow monitoring services provided as a subconsultant included installation, maintenance, and data management for 17 flow meters for a 60-day period.

SSes Flow Study, Russellville City Corporation, Arkansas—Field Technician. Comprehensive sanitary sewer evaluation study to meet the requirements of the City's AO involving flow and rainfall monitoring to support hydraulic modeling and direct condition field inspections. Services included site selection, installation, maintenance, and data collection and verification (28 meters/6 rain gauges) in sites ranging from 8" to 48".

Master Plan Flow Monitoring, HDR, Laredo, Texas—Field Supervisor. Flow monitoring services provided as a subconsultant for Master Plan development involving site selection, installation, and data collection/verification (12 temporary meters/3 rain gauges/90-days) in sites ranging from 6" to 48".

System-wide Flow Monitoring, Friendswood, Texas—Field Technician. City-wide flow monitoring program (20 meters/4 rain gauges) to identify areas of hydraulic overloading, capacity restrictions, and excessive inflow/infiltration. Services included meter site selection, installation, maintenance, data collection, and data analysis to determine base and peak flows during various dry- and wet-weather conditions. Sites ranged from 10" to 36".

Trevor Emmerling

Field Technician



Years of Experience: 3

Certifications/Training

NASSCO PACP/MACP Certification,
U-1113-06019294

OSHA 10-Hour Safety Certified,
28-005643359

First Aid, CPR, and AED (Defibrillator)

Work Zone Traffic Control

Defensive Driving for Non-Commercial
Vehicles

Confined Space Entry

Mr. Emmerling offers experience with conducting a wide range of specialized field inspections to measure conditions and performance of collection systems. He has installed and maintained flow monitoring equipment in large- and small-diameter sewers and collected condition data through manhole inspections, smoke testing, and dye water flooding using GPS-enabled data collectors.

RELATED PROJECT EXPERIENCE

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Supervisor. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Short-Term Flow and Rainfall Monitoring Services, DC Water, District of Columbia—Field Technician. Flow monitoring (12 month metering periods) including site verification, equipment installation, calibration, operation, and maintenance and data collection, verification and reporting for 161 flow meters and six rain gauges. The meter sites are located in pipes ranging from 10" to 264".

Hot Springs Flow Monitoring and Hydraulic Modeling, Arkansas—Field Technician. Flow monitoring (35 meters/10 rain gauges) and InfoWorks hydraulic modeling (2,100,000 LF, 160 pump stations, 3,300 grinder pumps) to validate completed rehabilitation measures for manholes, gravity sewer, and force mains. The SECAP plan outlining measures to improve capacity was updated.

Short-Term Flow Monitoring, Memphis, Tennessee—Field Technician. Short-term flow monitoring program (10 meters/3 rain gauges/60 days) involving site selection, equipment installation and maintenance, and data collection and analysis to identify capacity and performance issues in the system.

Master Plan Flow Monitoring, HDR, Midland, Texas—Field Technician. Temporary flow monitoring program to support development of the Master Plan. Services included installation, maintenance, and data collection/verification (30 meters/5 rain gauges/30 days). Sites ranged from 8" to 42".

Sanitary Sewer Flow Monitoring, Memphis, Tennessee—Field Technician. Temporary flow metering program involving site verification, installation, data analysis/verification, and I/I analysis using 11 flow meters and 3 rain gauges for a 60-day period in sites ranging from 14" to 47".

Upper Village Creek Flow Monitoring, JQI, Fort Worth, Texas—Field Technician. Flow monitoring services provided as a subconsultant involved site verification, equipment installation, equipment maintenance, data collection through wireless telemetry, and data verification services (8 meters/2 rain gauges/60 days). Sites ranged from 8" to 60".

Grand Prairie TRA Interceptor Flow Monitoring, ESPY, Grand Prairie, Texas—Field Technician. Installation and maintenance, and data collection and analysis for 5 meters installed in 102" interceptor transporting flows to the Trinity River Authority.

Mr. Pippins has conducted a wide range of field inspection services including the installation and maintenance flow meters and rain gauges. He has completed OSHA-compliant safety training and is proficient with inspection and data collection tasks including GPS survey, full descent and zoom camera manhole inspections, dye testing, smoke testing, night flow isolations, and CCTV inspections.

RELATED PROJECT EXPERIENCE

Years of Experience: 1

Certifications/Training

OSHA 10-Hour Safety Certification,
28-005643358

Defensive Driving for Non-Commercial
Vehicles

First Aid/CPR Certified,

Confined Space Entry

Crosstown Long-term Flow Monitoring Program, Austin, Texas—Field Technician. Long-term flow monitoring program involved maintenance and data collection for the City's permanent meters and selective temporary metering involving 26 permanent meters and 9 relocatable meters in sites ranging from 100' deep to 96" diameters.

Flow Monitoring and Modeling, The Wallace Group, Woodway, Texas—Field Technician. Flow monitoring and hydraulic modeling (InfoWorks) provided as a subconsultant. Services included site verification, equipment installation and maintenance, and data collection and verification for a network of 8 meters and 4 rain gauges (84 days) and construction and calibration of a hydraulic model simulating all 10-inch and larger pipes (45,000 LF).

TRA Interceptor Flow Metering, RPS Espey, Trinity River Authority, Texas—Field Technician. Short-term flow monitoring (3 meters/1 week) to capture flow levels to measure upstream and downstream flows at the entry point of a 72-inch interceptor into a 102-inch interceptor, and on the 102-inch pipe and the upstream 96-inch pipe.

I/I Assessment Flow Monitoring, Westlake, Texas—Field Technician. Temporary flow monitoring to assess I/I levels in the collection system. Services included site selection, equipment installation and maintenance, and data collection and verification (4 meter/1 rain gauge/240 days) in sites ranging from 12" to 24".

Williamson Creek Basin Flow Monitoring, Clark & Fuller, Temple, Texas—Field Technician. Short-term flow monitoring (5 meters/3 rain gauges/60 days) to evaluate I/I levels in the basin. Services included site verification, equipment installation and maintenance, and data collection and analysis.

2014/2015 SSES Program, Round Rock, Texas—Field Technician. Sewer inspection program to assess conditions in Basins LC09-Z, LC15-Z, LC16-Z, LC17-Z, LC18-Z, LC19-Z, BC20-Z, CC32-Z, CC34-Z, CC35-Z, and CC37-Z. Services included review of City-collected manhole inspection data (1,200), smoke testing (355,000 LF), and review of TV pipe inspection video (355,000 LF).

SSES 2015 and Manhole Rehabilitation, Flower Mound, Texas—Field Technician. 2015 Phase II sanitary sewer evaluation survey and manhole rehabilitation. Tasks included flow monitoring; rainfall monitoring; data analysis; manhole inspections; smoke testing; dyed water flooding; TV inspection and review; mapping; defect analysis and report; and manhole rehabilitation design.

Dennis McPhearson, PMP*Field Supervisor***Credentials**

- Experience: 25 years
- Master of Business Administration, University of Phoenix, 2005
- Bachelor of General Studies—University of Louisiana, 1988

Professional Memberships and Certifications

- Project Manager Professional, Global
- Safety Training Level 4
- Confined Space Training
- SAR Equipment Training
- CPR and First Aid Training

Mr. McPhearson has been with ADS for over 25 years and has performed sewer flow evaluations for municipalities covering nearly every state in the U.S. Mr. McPhearson has trained and managed hundreds of field personnel during his 25+ years.

Professional Experience

- Service Center Manager—Nashville, Tennessee. Managed a service center consisting of 2 full time field crews servicing a network of 80 long-term sanitary sewer monitors, 20 long-term CSO monitors, and 90 temporary flow meters.
- Field Manager/Corp Trainer, New York, New York—With special skills Mr. McPhearson volunteered as field crew on a long-term 15-monitor CSO project. Responsibilities were to install 15 monitors in very deep and very dangerous pipes, 40 – 110 ft. deep manholes consisting of a piping system of 60 – 120 inches in diameter. This project was one of the most difficult ever encountered thus far, but the night work, heavy traffic, and frigate winter temperatures of sometimes-below zero never stopped production.
- Field Manager/Corp Trainer, Birmingham, Alabama—Mr. McPhearson field managed a multi-million dollar long-term wastewater flow monitoring and SSES project. Responsibilities included map work, site selection, investigation, and installation of 165 long term monitors. Additionally, managed and trained 7 field crews in corporate procedures. SSES tasks performed included manhole inspections, line cleaning, and smoke testing.

Joe Freitas*Field Supervisor***Credentials**

- Experience: 18 years
- 40-Hour Hazwopper

Professional Memberships and Certifications

- ADS Field Representative
- Confined Space Entry
- Personal Protection Equipment (PPE)
- First-Aid and CPR (Red Cross)
- Blood Borne Pathogens and Hygiene
- Hazardous Materials
- Level IV Certification

Mr. Freitas is responsible for the day-to-day field operations for a number of small to medium projects or one large project. In this capacity he ensures projects are completed on time and within budget. Mr. Freitas performs equipment inspections and calibrations, regulates confined space work, and monitors compliance to health and safety policies. He has experience in flow monitoring, capacity analysis, I/I reduction study, and SCADA projects. His duties include site locations of flow meters, installation and servicing of flow meters.

Professional Experience

Mr. Freitas' project experience includes New Orleans, Louisiana Temporary Flow Monitoring; New Orleans, Louisiana Stormwater and Meter Sampling; and Crowley, Louisiana SCADA. In addition, he has worked as Field Manager on the following San Antonio Water System, Texas projects:

- 2009 Wastewater Flow Monitoring Services Contract. Flow monitoring within the Western watershed Temporary flow monitoring project for an I/I analysis and capacity analysis.
- 2010 Tri-Annual Wastewater Flow Monitoring Services Contract. Flow monitoring within selected monitoring locations throughout the wastewater collection system for an I/I analysis and capacity analysis.
- 2012 Tri-Annual Wastewater Flow Monitoring Services Contract. Flow monitoring for the Aquifer Protection & Evaluation Department to detect and prevent any possible sanitary sewer overflows by deploying an early warning system.

Michael Lopez*Field Technician***Credentials**

- Experience: 2 years

Professional Memberships and Certifications

- Safety Training Level 4
- Confined Space Training
- SAR Equipment Training
- CPR and First Aid Training

Mr. Lopez has 2 years of infiltration/inflow, water system monitoring, and sewer system evaluation experience. As Field Assistant, he is responsible for day-to-day field operations. Mr. Lopez has also worked on some of the largest long-term flow monitoring networks in existence today.

Professional Experience

Mr. Lopez has experience in flow monitoring, capacity analysis, and I/I reduction projects. His duties include site locations of flow meters, installation and servicing of flow meters, manhole inspections, smoke testing, dye testing and working with television inspection crews. Mr. Lopez performs manhole inspections and sewer line smoke testing associated with sanitary sewer evaluation surveys. Additionally, he performs equipment inspections and calibrations, regulates confined space work, and monitors compliance to health and safety policies.

Project experience includes San Antonio Water Systems, San Antonio River Authority, Houston, Texas and Tulsa, Oklahoma.

INTEGRATION OF NEW OSHA CONFINED SPACE ENTRY RULES

RJN's safety program is in compliance with OSHA "Title 29, Code of Federal Regulations, 1926.1201, (Confined Spaces in Construction which went into effect on 4 May 2015). Standard Number 1926.1201 describes the Scope of Subpart AA. RJN's program encompasses all of Title 29, CFR, Subpart AA 1926.1200, which includes Standard Numbers 1926.1201 through 1926.1213. Our program was initially developed on the basis of 29 CFR 1910.146, General Industry requirements and published in our Health and Safety Manual (2014).

With respect to 29 CFR 1926.1200 (1201-1213), the following is a brief summary of our program:

MULTI-EMPLOYER WORKSITE

Our firm has always complied with OSHA's Multi-employer Worksite Violation policy, particularly after the agency's clarification of the policy several years ago; at which time it was made applicable to all industry sectors.

Now, as a result of the 29 CFR 1926.1200 standard, our policy requires that our assigned Field Manager confer with the Controlling and/or Host employer prior to work to reference the potential hazardous situations that may exist and/or potential regulatory violations.

COMPETENT PERSON

Before beginning work at a worksite, RJN's policy requires that our assigned Competent person identify all confined spaces in which one or more of our employees may work, and identify each space that is a permit space, in consideration and evaluation of potential hazards of a space, including atmospheric testing as necessary. RJN's assigned Competent Persons receive extensive training to ensure their competency, i.e. Confined Entrant/Attendant, Rescue, 10-hour OSHA Outreach course.

ATMOSPHERIC TESTING

As part of our adherence to the provisions of the general industry, 29 CFR 1910.146, our policy already requires pre-entry and continuous atmospheric monitoring to include: LEL, Oxygen, Carbon Monoxide, and Hydrogen Sulfide throughout the entry.

DANGER SIGN

Our program has always involved securing the space and the surrounding area by taping off the area. Since the issuance of the 29 CFR 1926.1200 standard, our crews place a Danger Sign indicating the presence of the space and the entry.

TRAINING

All personnel involved in the entry into permit required confined spaces must complete a Confined Space Entry Entrant/Attendant Course as outlined in 29 CFR 1910.146 and 29 CFR 1926.1200.

OTHER PROVISIONS

Our program, since its inception also includes:

- Use of personal protective and personal rescue equipment, i.e. body harnesses, tripods and hoist.
- Arrangements for and availability of Rescue resources.
- Special equipment for affecting the atmosphere of a space, i.e. forced ventilation, etc.
- De-energization of hazardous energy sources and use of lockout devices/tags.
- Blockage of other piping or other conveyances that may enter the space.
- Monitoring devices with calibration schedules.
- Written permit forms; signed by the Competent Person; maintained for a year.
- If an additional unsafe condition arises, the entry permit is cancelled.

CONFINED SPACE RESCUE

In order for an employee or temporary worker to perform confined space entry or perform as an attendant, he shall be task trained on all applicable tasks and equipment, and have successfully completed an approved classroom and/or Internet based confined space entry training class.

Confined space entries shall be made with a minimum of two (2) properly trained workers.

Any unsafe condition that arises during a confined space entry shall cancel the entry.

Confined space entry shall be made using an RJN approved entry/non-entry retrieval configuration.

The Project Manager is responsible for researching the availability of confined space rescue services within the city, county, or municipality. If this type of rescue is not an offered service, the Project Manager will contact a local company that provides this service.

RJN has already determined that the City of Austin's Fire Department (AFD) Battalion 6 Special Operations Division stationed at Fire Stations 14, 20, 28, 31, and 32 would be the group to implement a confined space rescue operation.

The following page is the questionnaire/interview that would be conducted with the Chief of this Battalion or AFD representative. In addition to the questionnaire, RJN would provide to AFD a list of locations where work will be performed. This listing would include GPS coordinates, addresses, and any additional information needed for AFD to arrive on-site and conduct a rescue.

Project Specific Confined Space Entry Rescue Plan

Project Name		Date	
Project Number			
Project Manager			

Please indicate who will provide confined space entry rescue services; provide detailed contact information and a very specific rescue plan in the areas below:

	Third Party Information	RJN Information
Who will provide confined space rescue services for this project?		
Specifically describe rescue plan.		

Project Manager Signature	Date
Safety Representative Signature	Date

ADS SAFETY INFORMATION

This section contains the following safety information provided to RJN from our subcontractor, ADS:

- Confined Space Entry Plan
- Confined Space Entry Permit
- Confined Space Entry Log
- Site Specific Safety Plan Self Assessment Checklist
- ADS Employee Safety Records

Confined Space Entry

This policy establishes the basic operational requirements for conducting confined space entry operations. For the purpose of this policy, a confined space is a space or area that exhibits the following characteristics:

- It is large enough and configured in such a way that an employee can bodily enter and perform assigned work.
- It has a limited or restricted means for entry or exit.
- It is not designed for continuous occupancy.

Confined spaces include sanitary, storm, or combined collection systems; all lines (whether active or not), manholes, and pump station wet wells. When any doubt exists, employees will treat a worksite as a confined space. Entry means the action by which a person passes through an opening into a confined space. Entry includes ensuing work activities in that space and occurs as soon as any part of the entrant's body breaks the plane of an opening into the space.

Crew Size

At least two people are required for a confined space entry. At least one attendant must be present at all times. The number of attendants necessary for multiple entrants will depend on the configuration of the confined space, the nature of work to be performed, and the communications equipment available. Normally, every two entrants require three attendants.

Crew Member Duties

- **Entry Supervisor** The senior person on a crew serves as the entry supervisor and has overall responsibility for worksite safety. The entry supervisor also may be an authorized entrant or attendant. The entry supervisor shall be responsible for the following:
 - ☐ Determining the hazards that may exist during a specific entry, including information on the mode, signs or symptoms, and consequences of exposure to specific hazards
 - ☐ Ensuring that the crew has conducted atmospheric tests prior to entry and continuously while the confined space is occupied
 - ☐ Ensuring that all procedures and equipment required for safe entry are in place before certifying the space as safe for entry
 - ☐ Ensuring that the confined space entry log is properly filled out
 - ☐ Verifying that rescue services are available and that communication devices are operable
 - ☐ Certifying on the entry log that the space is safe for entry
- **Authorized Entrant** The employee entering the confined space serves as the entrant and shall be responsible for the following:
 - ☐ Knowing the hazards that may exist during entry
 - ☐ Properly using equipment as required by the *Field Safety Manual* and Entry Supervisor

Confined Space Entry

- ☐ Communicating with the attendant as necessary to enable the attendant to monitor entrant status
- ☐ Alerting the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation
- ☐ Exiting from the permit space as quickly as possible whenever any of the following occurs:

An order to evacuate is given by the attendant or the entry supervisor.

The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.

An evacuation alarm is activated.

- **Attendant** At least one attendant shall be present outside the confined space at all times during entry. The attendant shall be responsible for the following:
 - ☐ Knowing the hazards that may exist during entry
 - ☐ Detecting possible behavioral reactions the entrant may exhibit if exposed to hazards
 - ☐ Remaining outside the permit space during entry operations until relieved by another attendant
 - ☐ Monitoring activities inside and outside the space to determine whether it is safe for the entrant to remain in the space
 - ☐ Communicating with the entrant as necessary to monitor entrant status and to alert the entrant of the need to evacuate the space, when necessary
 - ☐ Performing non-entry retrieval as specified in the *Field Safety Manual*, when necessary
 - ☐ Summoning rescue and other emergency services as soon as the attendant determines that the entrant may need assistance to escape from the confined space or require medical attention
 - ☐ Warning unauthorized persons away from the confined space
 - ☐ Avoiding duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrant
 - ☐ Ordering the entrant to evacuate the permit space immediately under any of the following conditions:

The attendant detects the behavioral effects of hazard exposure in an entrant.

- The attendant detects a condition that could endanger the entrant.
- The attendant cannot effectively and safely perform all the duties required by this policy.

Atmospheric Monitoring

Personnel must test confined spaces for oxygen deficiency and flammable and toxic gases prior to entry and continuously throughout occupancy. Using lead acetate paper and/or ventilation alone is not sufficient. Personnel must check gas meters for proper calibration at the interval recommended by the manufacturer and maintain calibration records with the instrument.

Retrieval System

No employee will descend a vertical confined space or any vertical portion of any other confined space without an attached retrieval system. In confined spaces where horizontal movement is required and the risk of engulfment or being swept away exists, entrants will be belayed to a fixed object or cable system.

Personal Protection Equipment

All personnel working at a confined space entry site will wear steel-toed safety shoes/boots, hardhats, and safety glasses. In addition, when performing work on or adjacent to a roadway, all personnel must wear approved traffic vests.

Confined Space Entry Log

The confined space entry log must be maintained for any day in which a crew performs any confined space entries. The crew must maintain completed logs with project records for a period of 1 year and make them available for inspection.

Communications

- **Worksite** Continuous communications must be maintained with confined space entrants at all times. This communication may occur in the form of visual line of sight, a sound-powered device, or electronic communications equipment.
- **Off-Site** Each production crew must be able to summon rescue and/or emergency medical services to the worksite. Regional and project managers must ensure that appropriate equipment and communications procedures are in place at the start of each project. Project managers will include coordination with local rescue/EMS providers in determining appropriate communications procedures.

Field Safety Certification

All personnel must receive field safety certification equivalent to the level required to safely and successfully accomplish their specific job duties. At a minimum, each worker must have Level 1 certification. Certification primarily involves hands-on training to demonstrate the proficiency required to receive final certification. Some levels of certification may require video-based and classroom training. Refer to *Work Instruction SAF-13* for a detailed explanation of the certification process.

Instructions for using this form:

1. Complete **Side A** of this form for any day where one or more confined space entries are to be performed. The pre-operations checklist is to be completed and signed prior to proceeding to the first worksite.
2. Enter the required data for each entry on **Side B**. Use a new line for each set of gas meter readings taken at the same worksite. The person taking the readings must initial the log. The Entry Supervisor must certify the space as 'Safe to Enter' prior to entry.
3. File completed forms with project records.

WARNING: Confined Space Entry is a hazardous operation. This form is to be used with the approved SSP (Site Safety Plan) for each worksite. Constant hazards include atmospheric hazards, engulfment, falls, and falling objects. Other hazards may exist. See the SSP for a description of other hazards, site classification, and site-specific safety requirements. **Entry operations may not take place without an approved SSP and this form.**

Pre-Operations Checklist

Equipment (Bold = Required)

First Aid Kit _____
Fire Extinguisher _____
Radio / Cell Phone _____
Retrieval Gear _____
Portable Light _____
Air Blower _____
Traffic Control Equip. _____
HaulSafe/Tripod _____
Other: _____

PPE (Bold = Required)

Hard Hats _____
Safety Glasses _____
Safety Goggles _____
Safety Shoes/Boots _____
Leather Gloves _____
Rubber Gloves _____
Hearing Protection _____
Supplied Air Resp. _____
Other: _____

Gas Meter

Model _____

Serial # _____

Calibration checked prior to
first entry _____
Spvr. Initials

EMERGENCY NUMBER

Project _____

Entry Supervisor _____

Entrant(s) _____

Attendant(s) _____

The pre-operation checklist has been completed and all
required equipment is on-hand and operational. A Site
Safety Plan is on-hand for all worksites to be visited.

Entry Supervisor's Signature _____

Entry may not begin until atmospheric testing has shown acceptable conditions exist. Upon hearing a gas meter alarm, detecting an unusual odor, or on a warning from the attendant, the entrant(s) must immediately evacuate the confined space and may not re-enter until acceptable conditions have been re-established.

[illegible]

PROJECT NAME _____ SITE ID _____ SITE CLASSIFICATION (See Below) _____

Note: Class 5 Site Safety Plans must be approved by the Corporate Safety Manager

*** Hazards found at this site (Discuss checked items below)**

Type	No.	Specific Hazard	<input checked="" type="checkbox"/>
Communications	1	The site is in a communications "Dead-Zone"	
	2	The site is located in or adjacent to an intersection	
Traffic	3	The site is located on a hill, curve, or where motorists visibility of the site or other vehicles is reduced	
	4	The site is located in a high speed (>45 MPH) or high density roadway	
	5	Site traffic is congested at peak hours	
Access	6	Site has access obstacles (rough terrain, fences, deep easement, etc.)	
Worksite	7	Worksite contains hazards (terrain, slope, obstructions, etc.)	
	8	Elevated work requiring a ladder / work near an unguarded edge. Raised manhole (indicate height below)	
	9	Pedestrian control necessary as the site is located in or near a walkway, school, playground, etc.	
	10	Work may be performed during darkness; requiring additional site lighting	
Confined Space	11	Site is located in a high crime area (check with client & local authorities if unsure)	
	10	Confined Space does not have useable rungs	
	11	Confined Space depth is greater than 50 feet	
	12	Confined Space has internal platforms, weirs or other obstructions that interfere with or prevent unobstructed vertical retrieval	
	13	Work requires lateral movement that would interfere with or prevent unobstructed vertical retrieval	
	14	Flow is hazardous due to depth, velocity, pipe diameter, or is industrial process flow	
	15	Confined Space subject to surcharge during/after a rain event	
	16	CO, H2S, low O2 or other toxic/flammable gases present or anticipated	

*** Details of above hazards and how they will be controlled (attach additional sheets if necessary)**

*** Site Classification**

<input checked="" type="checkbox"/>	Class	Description
<input type="checkbox"/>	1	2-person crew. Standard procedures and equipment. No special requirements
<input type="checkbox"/>	2	Worksite (non-traffic) with access obstacles and/or worksite hazards
<input type="checkbox"/>	3	Traffic site requiring special scheduling, additional personnel and/or traffic control equipment, or outsourcing
<input type="checkbox"/>	4	Confined Space Entry requiring special scheduling, additional personnel and/or safety equipment
<input type="checkbox"/>	5	Special Operation requiring a separate safety plan. <i>Must be approved by Corporate Safety Manager</i>

*** Site Specific Safety Plan**

TRAFFIC CONTROL PLAN

Note: All worksites located in a roadway or immediately adjacent to a roadway where the operation may impede the normal flow of traffic are required to have a Traffic Control Plan. Standard Traffic Control Plans are to be carried in the vehicle and referred to when setting up the worksite. Special Traffic Control Plans are to be developed when required by clients or regulating agencies or when a standard Traffic Control Plan is not sufficient to control traffic at the worksite.

- ☐ This worksite does NOT require a traffic control plan
- ☐ Standard Traffic Control Plan _____ is to be used at this worksite
- ☐ This site requires a special Traffic Control Plan which is attached

Approved		Reviewed	
Field Mgr Name _____	Signature _____	Project Mgr Name _____	Signature _____
Date _____		Date _____	

ADS CORPORATION
FIELD SAFETY CERTIFICATION
LEVEL 2: ATTENDANT

This form is to be used to certify employees who will perform the duties of Confined Space Entry Attendant. The employee must demonstrate satisfactory knowledge and/or ability in all items listed before being assigned to unsupervised work. This form must be completed and signed by both the immediate supervisor and employee. Completed forms for permanent and temporary employees are to be sent to the Corporate Safety Office and kept on file at the local office.

Employee Name DEANIS McNEARSON
 Employee SSN [REDACTED]
 Date Hired 5/15/13
 Supervisor C. FRANKLIN

The above named employee has received training in the duties of ATTENDANT for Confined Space Operations and has demonstrated the following:

Item's DEMONSTRATED	DATE
Ability to perform traffic and pedestrian control tasks safely and effectively	2/5/13
Ability to set up the retrieval system.	2/5/13
Ability to read and interpret the gas meter being used by the crew, including gas alarms and malfunction conditions.	2/5/13
Ability to safely lower a worker into a manhole and tend the retrieval line.	2/5/13
Ability to monitor, and communicate, with the worker below	2/5/13
Ability to safely pass down and retrieve equipment and tools.	2/5/13
Ability to retrieve a worker from a manhole without assistance.	2/5/13
Ability to summon emergency medical and rescue services via radio or cell phone.	2/5/13
Completion of external certification; including Adult first Aid and Adult CPR	8/14/2011
Completion of internal training; including Personal Protective Equipment, Blood borne Pathogens, Hazard Communications, Gas Meter, Confined Space Entry and Back Safety	1/8/2013

Permit Space Rescue Practice Participants:

[Signature] _____
[Signature] _____
[Signature] _____

Employee/Supervisor qualified to perform the duties of Attendant.

[Signature] _____ 2/5/13 _____
 Signature of Employee Date
[Signature] _____ 2-5-13 _____
 Signature of Supervisor Date



FIELD SAFETY CERTIFICATION

LEVEL 3: BASIC ENTRANT / ENTRY SUPERVISOR

This form is to be used to certify employees who will perform the duties of Confined Space Basic Entrant / Entry Supervisor. The employee may certify to level 2 and level 3 concurrently. The employee must demonstrate satisfactory knowledge and/or ability in all items listed before being assigned to unsupervised work. This form must be completed and signed by both the Safety Training Coordinator and employee. Completed forms for all employees are to be sent to the Corporate Safety Office. Completed forms for all employees should also be kept on file at the field office.

Employee Name DENNIS MATHIAS
Employee Number 872
Date Hired 5/15/1989
Supervisor CHUCK CRANKLIN
CSE Trainer Joe Freitas
Level 2 Certification Date

The above named employee has received training in the duties of BASIC ENTRANT / ENTRY SUPERVISOR for Confined Space Operations and has demonstrated the following:

ITEM	DATE
Physical	
Ability to test, calibrate, read and interpret the gas meter being used by the crew, including gas alarms and malfunction conditions.	2/9/12
Ability to supervise and perform traffic and pedestrian control tasks safely and effectively.	2/9/12
Ability to supervise and set up rigging.	2/9/12
Ability to safely enter and exit into a manhole, with or without rungs.	2/9/12
Ability to self-rescue from a manhole without rungs.	2/9/12

The employee has received a copy of the Field Safety Manual

Joe Freitas
Signature of CSE Trainer / Supervisor

2-9-12
Date

I have read the Field Safety Manual and understand my Safety Responsibilities as an Employee of ADS Environmental Services.

[Signature]
Signature of Employee

2/9/2012
Date

This individual is qualified to perform the duties of Basic Entrant / Entry Supervisor.

Joe Freitas
Signature of CSE Trainer

2-7-12
Date



Field Safety Certification

LEVEL 4: ADVANCED ENTRANT / ENTRY SUPERVISOR

This form is to be used to certify employees who will perform the duties of Confined Space Advanced Entrant / Entry Supervisor. The employee must be certified to level 3, have a minimum of six months field experience at level 3, complete the training requirements and be approved by the Safety Manager. This form must be completed and signed by both the Safety Manager and employee. The form is to be retained with the employee's local personnel folder and a copy sent to the Corporate Safety Office.

Employee Name	DENNIS MCPHEARSON
Employee Number	872
Date Hired	5/15/1987
Supervisor	C. FRANKLIN
Level 3 Certification Date	2/5/2015

The above named employee has received training in the duties of ADVANCED ENTRANT / ENTRY SUPERVISOR for Confined Space Operations and has met the following requirements:

ITEM	DATE
Is physically qualified with no respiratory restrictions	1/24/2014
Equipment serviced annually at authorized Supplied Air Respirator service center	3/3/2014
Fit tested annually in accordance with OSHA Regulation 29CFR1910.134	2/29/2014
Completed Idex Cornerstone- Respiratory Protection Training Module	2/11/2014
Completed Annual Respiratory Protection Training (including respiratory hazards and protection overview, compressed gas cylinder safety, Scott Ska-Pak Supplied Air Respirator, breathing air supply)	2/29/2014
Completed Advanced Rigging Training (Haul safe/tripod retrieval system)	3/3/2014
Completed Special Confined Space Entry Management Training	3/3/2014

The employee has received a copy of the OSHA Regulation 29CFR1910.134, the Respiratory Protection Program and the Supplied Air Respirator (SAR) training requirements.


Signature of Safety Manager

3-17-16
Date

I have read the OSHA Regulation 29CFR1910.134, the Respiratory Protection Program and the Supplied Air Respirator (SAR) training requirements and understand my Safety Responsibilities as an Employee of ADS Environmental Services.


Signature of Employee

3/10/2016
Date

This individual is approved to perform the duties of Advanced Entrant / Entry Supervisor.


Signature of Safety Manager

3-17-16
Date

CERTIFICATE OF TRAINING
DENNIS MCPHEARSON

*Has attended, completed, and understands the Basic Operations
of Scott AV2000 Mask, Scott SCBA and Breathing Air*

Rick Daniels

Feb. 29 th, 2016

Instructor

Date



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NORTH AMERICA



**American
Red Cross**

Dennis McPhearson

has successfully completed requirements for

Adult First Aid/CPR/AED: valid 2 Years

Date Completed: 08/11/2015

conducted by: American Red Cross

Instructor: HAL H FUGLAAR



ID: 0X9U5B

Scan code or visit:

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ADS

FIELD SAFETY CERTIFICATION

LEVEL 2: ATTENDANT/ PERMIT SPACE RESCUE PRACTICE

This form is to be used to certify employees who will perform the duties of Confined Space Entry Attendant. The employee must demonstrate satisfactory knowledge and/or ability in all items listed before being assigned to unsupervised work. This form must be completed and signed by both the immediate supervisor and employee. Completed forms for permanent and temporary employees are to be sent to the Corporate Safety Office and kept on file at the local office.

Employee Name Joe Freitas
 Employee Number 2081
 Date Hired 29-Jun-98
 Supervisor [Signature]

The above named employee has received training in the duties of ATTENDANT for Confined Space Operations and has demonstrated the following:

Items DEMONSTRATED:	DATE
Ability to perform traffic and pedestrian control tasks safely and effectively.	6-11-15
Ability to set up the retrieval system.	6-11-15
Ability to read and interpret the gas meter being used by the crew, including gas alarms and malfunction conditions.	6-11-15
Ability to safely lower a worker into a manhole and tend the retrieval line.	6-11-15
Ability to monitor and communicate with the worker below.	6-11-15
Ability to safely pass down and retrieve equipment and tools.	6-11-15
Ability to retrieve a worker from a manhole without assistance.	6-11-15
Ability to summon emergency medical and rescue services via radio or cell phone.	6-11-15
Completion of external certification; including Adult first Aid and Adult CPR	06-05-15
Completion of internal training; including Personal Protective Equipment, Blood borne Pathogens, Hazard Communications, Gas Meter, Confined Space Entry and Back Safety	04-24-15

Permit Space Rescue Practice Participants

<u>Joe Freitas</u>	<u>[Signature]</u>	<u>6-11-15</u>
Print Name	Signature of Employee	Date
Print Name	Signature of Employee	Date
Print Name	Signature of Employee	Date
Print Name	Signature of Employee	Date

Employee/Supervisor qualified to perform the duties of Attendant.

<u>Joe Freitas</u>	<u>[Signature]</u>	<u>6-11-15</u>
Print Name	Signature of Employee Certified Level 2	Date
<u>Chuck Franklia</u>	<u>[Signature]</u>	<u>6-11-15</u>
Print Name	Signature of CSE Trainer / Supervisor	Date



FIELD SAFETY CERTIFICATION

LEVEL 3: BASIC ENTRANT / ENTRY SUPERVISOR

This form is to be used to certify employees who will perform the duties of Confined Space Basic Entrant / Entry Supervisor. The employee may certify to level 2 and level 3 concurrently. The employee must demonstrate satisfactory knowledge and/or ability in all items listed before being assigned to unsupervised work. This form must be completed and signed by both the Safety Training Coordinator and employee. Completed forms for all employees are to be sent to the Corporate Safety Office. Completed forms for all employees should also be kept on file at the field office.

Employee Name Joe Freitas
Employee Number 2081
Date Hired 29-Jun-98
Supervisor Chuck Franklin
CSE Trainer Dennis McPhearson
Level 2 Certification Date 6-11-15

The above named employee has received training in the duties of BASIC ENTRANT / ENTRY SUPERVISOR for Confined Space Operations and has demonstrated the following:

ITEM	DATE
Physical	<u>07-02-14</u>
Ability to test, calibrate, read and interpret the gas meter being used by the crew, including gas alarms and malfunction conditions.	<u>6-11-15</u>
Ability to supervise and perform traffic and pedestrian control tasks safely and effectively.	<u>6-11-15</u>
Ability to supervise and set up rigging.	<u>6-11-15</u>
Ability to safely enter and exit into a manhole, with or without rungs.	<u>6-11-15</u>
Ability to self-rescue from a manhole without rungs.	

The employee has received a copy of the Field Safety Manual

[Signature]
Signature of CSE Trainer / Supervisor

6/11/15
Date

I have read the Field Safety Manual and understand my Safety Responsibilities as an Employee of ADS Environmental Services.

[Signature]
Signature of Employee

6-11-15
Date

This individual is qualified to perform the duties of Basic Entrant / Entry Supervisor.

[Signature]
Signature of CSE Trainer

6/11/15
Date



Field Safety Certification

LEVEL 4: ADVANCED ENTRANT / ENTRY SUPERVISOR

This form is to be used to certify employees who will perform the duties of Confined Space Advanced Entrant / Entry Supervisor. The employee must be certified to level 3, have a minimum of six months field experience at level 3, complete the training requirements and be approved by the Safety Manager. This form must be completed and signed by both the Safety Manager and employee. The form is to be retained with the employee's local personnel folder and a copy sent to the Corporate Safety Office.

Employee Name	T. Franklin
Employee Number	
Date Hired	
Supervisor	C. Franklin
Level 3 Certification Date	1-11-15

The above named employee has received training in the duties of ADVANCED ENTRANT / ENTRY SUPERVISOR for Confined Space Operations and has met the following requirements:

ITEM	DATE
Is physically qualified with no respiratory restrictions	7-2-15
Equipment serviced annually at authorized Supplied Air Respirator service center	3-3-16
Fit tested annually in accordance with OSHA Regulation 29CFR1910.134	02-29-16
Completed Idex Cornerstone- Respiratory Protection Training Module	02-29-16
Completed Annual Respiratory Protection Training (including respiratory hazards and protection overview, compressed gas cylinder safety, Scott Ska-Pak Supplied Air Respirator, breathing air supply)	12-24-15
Completed Advanced Rigging Training (Haul safe/tripod retrieval system)	06-11-15
Completed Special Confined Space Entry Management Training	12-23-15

The employee has received a copy of the OSHA Regulation 29CFR1910.134, the Respiratory Protection Program and the Supplied Air Respirator (SAR) training requirements.


Signature of Safety Manager
3-22-16
Date

I have read the OSHA Regulation 29CFR1910.134, the Respiratory Protection Program and the Supplied Air Respirator (SAR) training requirements and understand my Safety Responsibilities as an Employee of ADS Environmental Services.


Signature of Employee
03-22-16
Date

This individual is approved to perform the duties of Advanced Entrant / Entry Supervisor.


Signature of Safety Manager
3-22-16
Date

CERTIFICATE OF TRAINING

JOE FREITAS

*Has attended, completed, and understands the Basic Operations
of Scott AV2000 Mask, Scott SCBA and Breathing Air*

Rick Daniels

Feb. 29 th, 2016

Instructor

Date



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NORTH AMERICA



36-005712741

This card acknowledges that the recipient has successfully completed a
10-hour Occupational Safety and Health Training Course in
Construction Safety and Health

Joe Freitas

Peter Rice 97357

10/16/2015

(Trainer name – print or type)

(Course end date)



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Joe Freitas

has successfully completed requirements for

Adult First Aid/CPR/AED: valid 2 Years

Date Completed: 06/05/2015

conducted by: American Red Cross

Instructors: **SHARON F
RICHTER**



ID: 0X150D

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6/8/2015

LEVEL 2: ATTENDANT/ PERMIT SPACE RESCUE PRACTICE

This form is to be used to certify employees who will perform the duties of Confined Space Entry Attendant. The employee must demonstrate satisfactory knowledge and/or ability in all items listed before being assigned to unsupervised work. This form must be completed and signed by both the immediate supervisor and employee. Completed forms for permanent and temporary employees are to be sent to the Corporate Safety Office and kept on file at the local office.

Employee Name Michael Lopez
 Employee Number A-9
 Date Hired 04-06-15
 Supervisor Joe Freitas

The above named employee has received training in the duties of ATTENDANT for Confined Space Operations and has demonstrated the following:

Items DEMONSTRATED:	DATE
Ability to perform traffic and pedestrian control tasks safely and effectively.	04-14-15
Ability to set up the retrieval system.	04-14-15
Ability to read and interpret the gas meter being used by the crew, including gas alarms and malfunction conditions.	04-14-15
Ability to safely lower a worker into a manhole and tend the retrieval line.	04-14-15
Ability to monitor and communicate with the worker below.	04-14-15
Ability to safely pass down and retrieve equipment and tools.	04-14-15
Ability to retrieve a worker from a manhole without assistance.	04-15-15
Ability to summon emergency medical and rescue services via radio or cell phone.	04-09-15
Completion of external certification; including Adult first Aid and Adult CPR	04-07-15
Completion of internal training; including Personal Protective Equipment, Blood borne Pathogens, Hazard Communications, Gas Meter, Confined Space Entry and Back Safety	04-08-15 + 04-09-15

Permit Space Rescue Practice Participants

<u>Alan Coyle</u>	<u>[Signature]</u>	<u>4-15-15</u>
Print Name	Signature of Employee	Date
<u>Roy Zimmerman</u>	<u>[Signature]</u>	<u>4-15-15</u>
Print Name	Signature of Employee	Date
	Signature of Employee	Date
Print Name	Signature of Employee	Date

Employee/Supervisor qualified to perform the duties of Attendant.

<u>Michael</u>	<u>[Signature]</u>	<u>04-15-15</u>
Print Name	Signature of Employee Certified Level 2	Date
<u>Joe Freitas</u>	<u>[Signature]</u>	<u>04-15-15</u>
Print Name	Signature of CSE Trainer / Supervisor	Date



Field Safety Certification

LEVEL 4: ADVANCED ENTRANT / ENTRY SUPERVISOR

This form is to be used to certify employees who will perform the duties of Confined Space Advanced Entrant / Entry Supervisor. The employee must be certified to level 3, have a minimum of six months field experience at level 3, complete the training requirements and be approved by the Safety Manager. This form must be completed and signed by both the Safety Manager and employee. The form is to be retained with the employee's local personnel folder and a copy sent to the Corporate Safety Office.

Employee Name	Michael Lopez
Employee Number	A-1 Temp.
Date Hired	04-06-15
Supervisor	Joe Freitas
Level 3 Certification Date	N/A - Level 2 (04-15-15)

Fit test completed on Level 2 Temp. mly.

The above named employee has received training in the duties of ADVANCED ENTRANT / ENTRY SUPERVISOR for Confined Space Operations and has met the following requirements:

ITEM	DATE
Is physically qualified with no respiratory restrictions	04-10-15
Equipment serviced annually at authorized Supplied Air Respirator service center	3-3-16
Fit tested annually in accordance with OSHA Regulation 29CFR1910.134	02-27-16
Completed Idex Cornerstone- Respiratory Protection Training Module	02-09-16
Completed Annual Respiratory Protection Training (including respiratory hazards and protection overview, compressed gas cylinder safety, Scott Ska-Pak Supplied Air Respirator, breathing air supply)	02-27-16
Completed Advanced Rigging Training (Haul safe/tripod retrieval system)	—
Completed Special Confined Space Entry Management Training	—

The employee has received a copy of the OSHA Regulation 29CFR1910.134, the Respiratory Protection Program and the Supplied Air Respirator (SAR) training requirements.

Signature of Safety Manager

Date

I have read the OSHA Regulation 29CFR1910.134, the Respiratory Protection Program and the Supplied Air Respirator (SAR) training requirements and understand my Safety Responsibilities as an Employee of ADS Environmental Services.

Michael Lopez
Signature of Employee

03-03-16
Date

This individual is approved to perform the duties of Advanced Entrant / Entry Supervisor.

Signature of Safety Manager

Date

CERTIFICATE OF TRAINING
MICHAEL LOPEZ

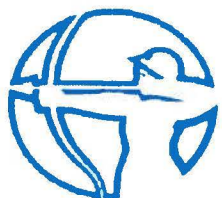
*Has attended, completed, and understands the Basic Operations
of Scott AV2000 Mask, Scott SCBA and Breathing Air*

Rick Daniels

Feb. 29 th, 2016

Instructor

Date



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**American
Red Cross**

Michael Lopez

has successfully completed requirements for

Adult First Aid/CPR/AED: valid 2 Years

Date Completed: 04/07/2015

conducted by: American Red Cross

Instructors: Margaret

Jean Loudon



ID: 0WPW13

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RJN GROUP SAFETY TRAINING AND CERTIFICATION PROCEDURES

Safety Education begins the first day of employment for all staff. RJN performs a portion of these efforts in house as part of our Safety Task Training. Other items that require OSHA specific training are outsourced. The Safety Task Training items are conducted by the Local Safety Representative, designated trainer, or employees with an RJN Safety Certification. Outsourced required Safety Training items are performed by various accredited trainers. These trainers vary from region to region to meet each states' requirements. Training organizations include the American Red Cross, University of Texas at Arlington, Maryland SHA, the American Traffic Safety Services Association (ATSSA), Underground Safety and Supply, United Rentals, and the National Safety Council.

RJN's Safety Education Program an initial 48-hours of documented training. Beyond the initial training, Local Safety Representatives conduct safety meetings with staff on a monthly basis, thus addressing concerns in the field and reinforcing applicable Safety Task Training items. For the courses that have certification expirations, RJN conducts annual refresher or certification courses.

The table below details the training items referenced above:

Competency Item	Annual Training (Hours)
Operation of Company Vehicles	1.0
Chemical Use and Hazard Communication	1.0
Bloodborne Pathogens	0.5
Gas Detection and Equipment	1.0
Hand Tools	0.5
Traffic Control Set Up & Removal	2.0
Confined Space Entry Equipment	1.5
Confined Space Rescue	2.0
Fall Protection	1.0
Manhole Entry	1.5
Pipe Plug, Use and Maintenance	4.0
First/Aid CPR	8.0
OSHA Inspection Training	1.0
Confined Space Entry - Classroom	5.0
Traffic Control Program - Classroom	8.0
OSHA's 10-hour Outreach Program in Construction Safety	10.0
Total Hours	48.0

CLARIFICATIONS NEEDED FROM THE CITY OF AUSTIN

RJN Group does not have any uncertainties, risks, or concerns that the City could clarify.

September 30, 2016

Danielle Lord
Corporate Purchasing Manager
City of Austin
Purchasing Office
P.O. Box 1088
Austin, TX 78767

RE: Best and Final Offer of EAD0128, Flow Monitoring

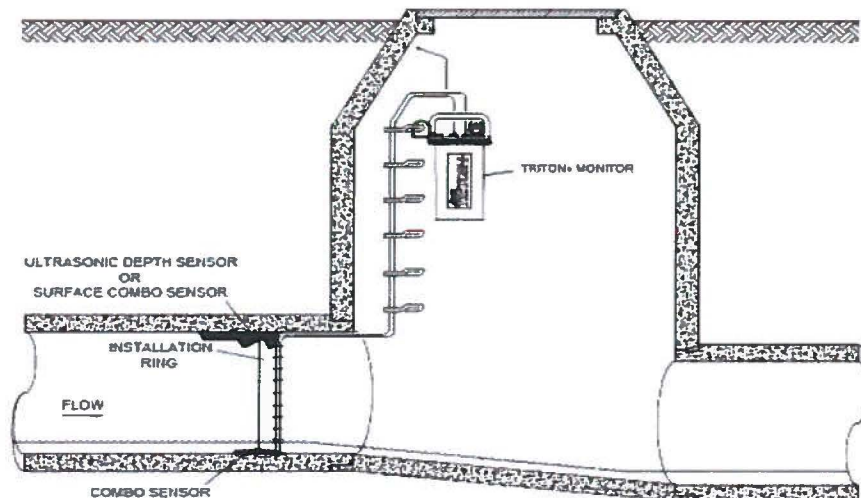
Dear Sirs and Mesdames:

We appreciate the opportunity to provide the additional information you requested. Our responses are as follows:

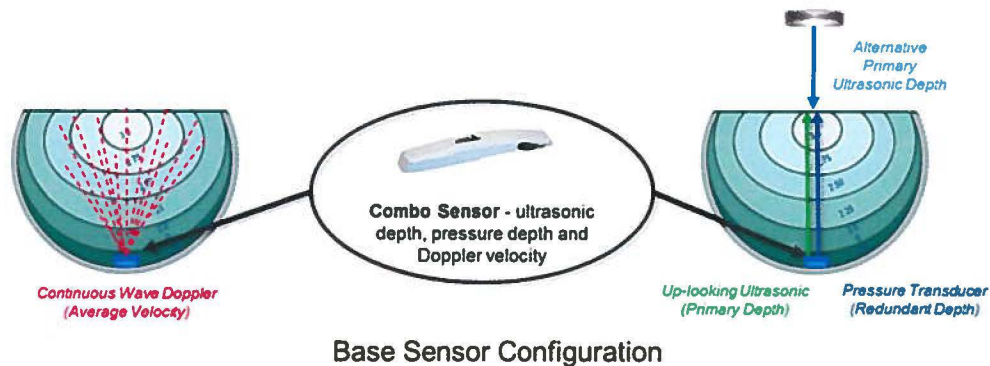
1. *A sketch or diagram with high level details showing the flow metering devices, probes, and sensors proposed for the base to provide both the depth component of flow and velocity component of flow;*

The flow meter will be the ADS Triton data logger with a combo sensor that contains redundant depth sensors and a continuous wave velocity sensor outfitted in a common probe housing. The redundant depth sensors include an ultrasonic “up-looking” sensor as the primary depth device and a redundant pressure sensor. The sensor is located on the invert of the pipe attached to an expandable ring that is secured to the pipe.

In the event the up-looking ultrasonic capability is comprised, our approach includes the provision of an additional ultrasonic “down-looking” depth sensor located at the crown of the pipe. This ensures that an ultrasonic sensor will be used as the primary depth device to fulfill the raw depth uptime requirements of the base proposal.



2. A sketch or diagram with high level details showing the flow metering devices, probes, and sensors proposed for optional items no. 24 and no. 25 and note any differences between what was proposed for the base and the optional items. In addition, explain the difference in your base and optional items between payment based on raw depth uptime (base items) and payment based on Raw Q uptime (optional items). Identify any changes in hardware between the base and optional items and provide high level details and explanation of any soft costs and additional efforts associated with the base items no. 4 and no. 8 and optional items no. 24 and no. 25.



Equipment - The discussions with AWU have clarified our approach to these optional items. The standard equipment for the optional items no. 24 and no. 25 will be enhanced if the acquisition of the primary velocity component is compromised. In such cases, a redundant surface velocity will be installed.

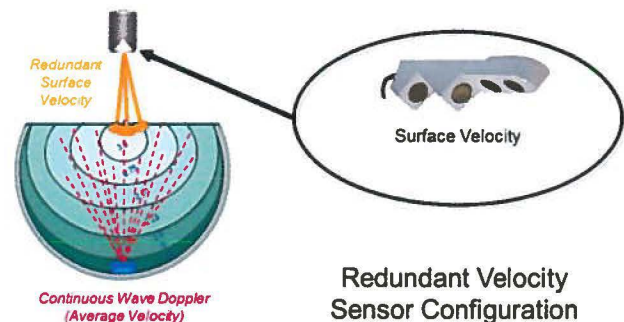
Because the surface velocity is incapable of measuring the average velocity, it will be calibrated to the continuous wave velocity sensor and used to supplement any missing data.

Uptime Difference with Base - No payment will be provided if more than three (3) days of data are missing. The primary difference in cost relates strictly to the added risk for not obtaining a velocity component to generate a Raw Q.

A reliable depth is far easier to achieve than a reliable velocity. Under the base proposal, two (2) depth sensors will be provided at each site with the potential for a third non-contact depth device for troublesome sites.

Conversely, the base velocity sensor is submerged and subject to debris settlement and damage. Submerged sensors have a much higher risk of failure than non-contact sensors.

For the provision of Raw Depth uptime, weekly data reviews will be focused on diagnosing the integrity of the depth data along with acknowledgement of a reasonable velocity trace. The integrity of the velocity



data will be evaluated monthly, during the finalization of the data. This configuration and review approach provides a high confidence in the provision of a depth component.

For the provision of Raw Q uptime, weekly data reviews will be focused on diagnosing the integrity of both the depth and velocity data.

Site Visitation – To ensure that the Raw Depth uptime requirement is met, service assignments will be directed to ensuring a depth component is available. As required in the specifications, service will be provided within 72 hours (3 days) from notification from the City.

To ensure that the Raw Q uptime is met, crew will be dispatched to restore the site within 24 hours. Sites with recurring velocity downtime would be outfitted with a redundant velocity sensor.

Summary of Costs – The following summarizes the cost differences between Raw Depth uptime and Raw Q uptime:

Raw Depth Uptime	Raw Q Uptime
<ul style="list-style-type: none"> Weekly data review focused primarily on quality of depth data 	<ul style="list-style-type: none"> Weekly data review focused on quality of both depth and velocity data
<ul style="list-style-type: none"> Dispatching of crew within 72 hours to restore velocity data 	<ul style="list-style-type: none"> Dispatching of crew to restore velocity within 24 hours
<ul style="list-style-type: none"> Single submerged average velocity sensor 	<ul style="list-style-type: none"> Additional capital costs for redundant surface velocity sensor (point velocity) along with correlation to submerged velocity sensor (average velocity)

3. *A high level overview of the differences in costs between your base items associated with verifications on a quarterly basis and optional items no. 26 and no. 27 which specify verifications on a monthly basis.*

The difference in cost is strictly related to the added labor to perform the calibrations. Each additional verification is based on crew time. Eight (8) additional verifications would be provided beyond the base requirement of four (4) per year.

After installing the equipment, the additional verifications obtained within the first month are used to set the sensor traces. Verifications beyond that are used to verify site stability. For this, quarterly verifications are the universal standard and are sufficient to accomplish this task.

In the event, the equipment is removed and replaced, verifications before and after the service are obtained. These verifications, along with verifications requested by a Data

Analyst to further evaluate a site, are already included in the base service and maintenance costs.

4. *List any additional cost effective alternatives, techniques, ideas, methods, or solutions your company can offer the City.*

- a. A \$39,000 savings can be deducted from the total base price if the City does not require the re-installation of equipment at the 26 existing sites that we are currently maintaining.
- b. The service and maintenance and data processing costs could be reduced if the City were to approve the non-contact surface velocity sensors as a primary depth device. Surface velocity sensors require far less service and maintenance effort, because they are not submerged.

Like electromagnetic velocity sensors, surface velocity sensors fall short on providing an accurate Raw Q because they are incapable of measuring the average velocity. All flow characteristics other than standard uniform free-flow conditions would invalidate the Raw Q results, if using a point velocity device. Common to wet-weather peak flows responses, the effects of backwater, undertow, swirling, head pressure and pump stations would be unknown.

Dry-weather flow rate accuracy using surface velocities could be improved through a significant number of additional calibrations to develop a depth to discharge relationship for each site throughout the range of flows. However, this is beyond the scope of these requirements and would not overcome uncertainties during peak flow conditions. We understand from the modelers and engineers that the provision of anything less than an accurate Raw Q would be counter intuitive to the accuracy requirements established by staff on previous monitoring programs. For these reasons, we have not considered this approach in our pricing.

5. *Pricing Document*

The attached pricing document reflects our best and final offer. In addition, a technical memorandum is also attached that explains our reasoning for selecting the equipment for this project.

Thank you for your consideration.

Best Regards,
RJN Group, Inc.



P. Jeffrey Plymale
Executive Vice President



City of Austin Best and Final Offer (BAFO)

EAD0128- Flow Monitoring

The City of Austin will utilize the information on this BAFO for analyzing competing proposals and selection purposes.

Vendor Name:	RTN GROUP, INC.
Vendor Signature:	<i>[Signature]</i>
Date:	9/29/16

Instructions:

An entry of "0" (zero) will be interpreted by the City as a no-charge (free) item and the City will not pay for that item. Items listed below are required to have a price or an entry of 0. The quantities noted below are estimates and not a guarantee of actual volume. The City does not guarantee the purchase of the quantities listed. Quantities are provided as a guide. Actual purchases may be more or less.

Special Instructions:

For the base, price items no. 4 and no. 8 will be paid based upon on raw depth uptime as detailed in Section 9.4a of the Scope of Work. It is noted that processing of flow meter data and verification points for depth and velocity are required as specified in the Contract Documents.

For the optional items no. 24 and no. 25, payment shall be based on Raw Q uptime as detailed in Section 9.4b of the Scope of Work. Note that optional bid items no. 24 and no. 25 are additional payments to cover the costs of additional hardware and other efforts including the services related to providing, installing, maintaining, collecting, and processing reliable velocity and depth measurement data to meet the Raw Q up time requirement which is above and beyond base bid items. If these options are selected then the payment will include both the base bid items and the optional bid items.

Price Sheet Line	Line Description	UNIT	ESTIMATED QUANTITY	PRICE PER UNIT	PRICE PER MONTH	PRICE PER YEAR	TOTAL PRICE
1	Removal of 4 Meters - Removal of Existing Meters at all depth and sewer main sizes. The quantity is for four (4) metering sites at the beginning of the contract period.	EACH	4	\$1,000			\$4,000
2	Installation of 45 Permanent Meters - Installation of flow meters at all depth and sewer main sizes. This is the installation of the each flow meter at each site. The quantity is for forty five (45) metering sites installed at the beginning of the contract period.	EACH	45	\$1,500			\$67,500
3	Removal of 45 Permanent Meters - Removal of flow meters from all depths and all sewer main line sizes at the end of contract period. This is the removal of each flow meter from each site. The quantity is forty five (45) metering sites removed at the end of the contract period.	EACH	45	\$500			\$22,500
4	45 Permanent Meters - Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site for one month. This includes the monthly metering and raw data. Payment will be based on raw depth uptime as detailed in Section 9.4 a of the Scope of Work.	EACH SITE PER MONTH	45	\$480	\$21,600	\$259,200	\$259,200
5	45 Permanent Meters - Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site for one month. This includes the processing raw data and QA/QC as detailed Section 8. Payment will be based of processing the data per Section 8 of the Scope of Work.	EACH SITE PER MONTH	45	\$450	\$20,250	\$243,000	\$243,000
6	Installation of 25 Rotating Meters - Installation of flow meters at all depth and sewer main sizes. This is the installation of the each flow meter at each site. The quantity is twenty five (25) metering sites installed at the beginning of each twelve (12) month contract period.	EACH	25	\$1,500			\$37,500
7	Removal of 25 Rotating Meters - Removal of flow meters from all depths and all sewer main line sizes. This is the removal of each flow meter from each site. The quantity is twenty five (25) metering sites removed at the end of each twelve (12) month contract period.	EACH	25	\$500			\$12,500
8	25 Rotating Meters - Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site for one month. This includes the monthly metering and raw data. Payment will be based on raw depth uptime as detailed in Section 9.4 a of the Scope of Work.	EACH SITE PER MONTH	25	\$480	\$12,000	\$144,000	\$144,000
9	25 Rotating Meters - Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site for one month. This includes the processing raw data and QA/QC as detailed Section 8. Payment will be based of processing the data per Section 8 of the Scope of Work.	EACH SITE PER MONTH	25	\$450	\$11,250	\$135,000	\$135,000

[Handwritten mark]

Price Sheet Line	Line Description	UNIT	ESTIMATED QUANTITY	PRICE PER UNIT	PRICE PER MONTH	PRICE PER YEAR	TOTAL PRICE
10	Installation of Temporary Meters – Installation of temporary flow meters at no more than 30 feet deep or 72 inches in diameter. This is the installation of the each flow meter at each site. The quantity is up to eighteen (18) metering sites for each twelve (12) month contract period.	EACH	18	\$1,500			\$27,000
11	Removal of Temporary Meters – Removal of temporary flow meters from each temporary site. The quantity is up to eighteen (18) metering sites for each twelve (12) month contract period.	EACH	18	\$500			\$9,000
12	Temporary Meters – Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. This includes the monthly metering and raw data. The estimated quantity is up to thirty (30) location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based on raw depth uptime as detailed in Section 9.4 a.	LOCATION MONTH	30	\$2,400			\$72,000
13	Temporary Meters – Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site per month. This includes the processing raw data and QA/QC as detailed Section 8. The quantity up to thirty (30) locations location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based of processing the data per Section 8.	LOCATION MONTH	30	\$420			\$12,600
14	Allowance For Permits – Compensation for permit costs shall be based upon the actual costs of permits substantiated with a City of Austin Invoice. The Contractor's efforts to coordinate, assist, and oversee permits shall be subsidiary and are not included as part of this allowance. This allowance covers the cost of permits for both the base items and any option items, if selected.	LS	1	\$5,000			\$5,000
15	All Other Items. The contractor shall include related services in their price proposal including, but not limited to data and equipment, computer or cell compatibility, reporting, transferring software, training, maintenance service, debris removal, permits and licenses, removal emergency safety plan.	LS	1	\$5,000			\$5,000
16	Processing flow monitoring data after a major rain event approximately 10 times per year.	MAJOR RAIN EVENT	10	\$8,925			\$89,250
Base	TOTAL BAFO FOR BASE						\$1,145,050

Price Sheet Line	Line Description	UNIT	ESTIMATED QUANTITY	PRICE PER UNIT	PRICE PER MONTH	PRICE PER YEAR	TOTAL PRICE
17	Installation of 25 Rotating Level Indicating Meters – Installation of level indication only flow meters at all depth and sewer main sizes. This is the installation of the each flow meter at each site. The quantity is twenty five (25) metering sites installed for each twelve (12) month contract period.	EACH	25	\$250			\$6,250
18	Removal of 25 Rotating Level Indicating Meters – Removal of level indicating meters from all depths and all sewer main line sizes at the end of contract period. This is the removal of each flow meter from each site. The quantity is twenty five (25) metering sites removed for each (12) month contract period.	EACH	25	\$250			\$6,250
19	Rotating Meters Level Indicating Meters – Monthly Metering, Interactive Data Delivery, and Telog Enterprise Data Upload for twenty five (25) sites per month. This includes the monthly metering and data. Payment shall be based on raw depth uptime. Uptime shall be defined as the number of measurement intervals where a flow value can be calculated from a measured depth for a common time interval divided by the total number of measurement intervals in the reporting period.	EACH SITE PER MONTH	25	\$210	\$5,250	\$63,000	\$63,000
20	Installation of Temporary Meters – Installation of temporary flow meters at no more than 30 feet deep or 72 inches in diameter. This is the installation of the each flow meter at each site. The quantity is up to twenty four (24) metering sites for each twelve (12) month contract period.	EACH	24	\$1,500			\$36,000
21	Removal of Temporary Meters – Removal of temporary flow meters from each temporary site. The quantity is up to twenty four (24) metering sites for each twelve (12) month contract period.	EACH	24	\$500			\$12,000
22	Temporary Meters – Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. This includes the monthly metering and raw data. The quantity is up to forty eight (48) location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based on raw depth uptime as detailed in Section 9.4 a of the Scope of Work.	LOCATION-MONTH	48	\$2,400			\$115,200
23	Temporary Meters – Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site per month. This includes the processing raw data and QA/QC as detailed Section 8. The quantity is up to forty eight (48) location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based of processing the data per Section 8 of the Scope of Work.	LOCATION-MONTH	48	\$450			\$21,600
24	45 Permanent Meters, Additional Efforts Associated with Raw Q Uptime – Includes Monthly Metering, Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. Payment shall be based on Raw Q uptime as detailed in Section 9.4 b of the Scope of Work. Note this is the additional cost above and beyond the base bid item no. 4. If selected, payment will include both bid item no. 4 and bid item no. 24.	EACH SITE PER MONTH	45	\$150	\$6,750	\$81,000	\$81,000
25	25 Rotating Meters, Additional efforts associated with Raw Q Uptime – Includes Monthly Metering, Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. Payment shall be based on Raw Q uptime as detailed in Section 9.4 b of the Scope of Work. Note this is the additional cost above and beyond base bid item no. 8. If selected, payment will include both bid item no. 8 and bid item no. 25.	EACH SITE PER MONTH	25	\$150	\$3,750	\$45,000	\$45,000
26	45 Permanent Meters, Additional efforts associated with Monthly Verifications – This includes monthly verifications of each FMS per Section 5.11 of the Scope of Work. The quantity is each site per month. Note this is the additional cost for monthly verifications above and beyond the base bid. If selected, payment will include the base bid and this option.	EACH SITE PER MONTH	45	\$100	\$4,500	\$54,000	\$54,000
27	25 Rotating Meters, Additional efforts associated with Monthly Verifications – This includes monthly verifications for each FMS in Option # 1 per Section 5.11 of the Scope of Work. The quantity is for each site per month. Note this is the additional cost for monthly verifications above and beyond the base bid. If selected, payment will include the base bid and this option.	EACH SITE PER MONTH	25	\$100	\$2,500	\$30,000	\$30,000
Options	TOTAL BAFO FOR OPTIONS						\$470,300
Options	TOTAL BAFO FOR BASE & OPTIONS						\$1,615,350

How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

The following discusses the various flow monitoring technologies for use in gravity sewers and their ability to measure highly accurate flow rates. Before jumping into the various theories of operation and technical aspects of each instrument, let's dispel a few broad-sweeping statements that will continually be referred to throughout this discussion:

1. *Flow monitoring equipment does not measure the flow rate.*

True. Flow monitoring equipment measures the parameters used in formula to calculate a flow rate.

2. *The accuracy of each sensor determines the accuracy of a calculated flow rate.*

False. In addition to sensor precision, each sensor must measure the correct parameter. Depth and other measurements are used to derive the wetted area. Velocity measurements must yield an average velocity of the measured cross section. To put into other words, successfully climbing a ladder to the roofs fails if it is not leaning against the right wall.

3. *The continuity equation requires a depth and a velocity measurement to accurately calculate the flow rate.*

False. The continuity equation requires measurements of wetted area derived from depth, pipe geometry and silt, along with the average velocity, not a velocity. Because gravity sewer hydraulics are non-uniform, not always free-flow and highly unpredictable, the geometric effects of siltation and the capturing the average velocity are essential and ever-changing.

4. *Some equipment does not require calibrations to accurately measure the flow rate.*

False. Sensor calibrations differ from hydraulic calibrations and both are mandatory for accurate flow rate calculations in gravity sewers. Calibrated (precise) equipment does not necessarily yield an accurate measurement of the flow rate. The type of calibration, frequency and method will vary.

5. *For most meters the depth and velocity are not that different for measuring accurate flow rates.*

False. What they measure, the theory of operation, performance envelopes, technology and processing algorithms all differ. As a result, each has strengths and optimal applications; all have weakness and are often misused.

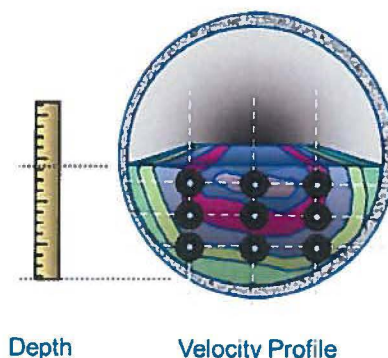
To understand accuracy, we need to first understand the means by which accuracy is measured or "calibrated". There are various terms used in the industry to describe calibrations:

1. **Calibration** – (sensor precision) – a comparison of measurements, one being a standard. With respect to sensor precision, the manufacturer does this, the flow service provider really doesn't. This term is very general and used industry wide, though somewhat misleading. In practice, a calibration compares a manual sensor value with the meter sensor value. While a graduated depth tool (ruler) might be a sufficient standard, a manual velocity (i.e. electromagnetic) is not really a standard, just another device. Among manufacturers, the returned meter velocity values differ. Some acquire localized point velocities, some obtain the peak value and others derive an average of the returned values.

How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

2. **Confirmation** (compares sensor values) – is manual measurement used to evaluate sensor precision, not flow accuracy. This is often used interchangeably with the term calibration. In practice, it is used to determine if the returned depth and velocity sensor values are “close enough” to another device.
3. **Hydraulic Profile Calibration**– (flow rate accuracy) – measurements used to determine flow rate accuracy by comparing a manual derived flow rate to the meter’s calculated flow rate. It is often shortened to a Hydraulic Profile and incorrectly shortened to the term “velocity profile”, which is just one component of the Hydraulic Profile. A Hydraulic Profile involves (a) a manual depth of flow measurement, (b) a velocity profile and (c) geometric measurements of the flow cross-section.
 - a. Manual Depth – measurement from the bottom of the pipe invert to the surface of the flow
 - b. Velocity Profile – a set of velocity readings integrated to produce an average velocity throughout the entire cross section of flow
 - c. Geometric measurements of the flow cross-section – the cross sectional area of the pipe (generally fixed) and the level of siltation (dynamic). Both are needed to develop the cross-sectional area of the flow, which will change over time due to changing silt levels.
4. **Verification** – a client specific term. In some cases it refers to a hydraulic profile, in others a confirmation. In most cases, it compares sensor values.

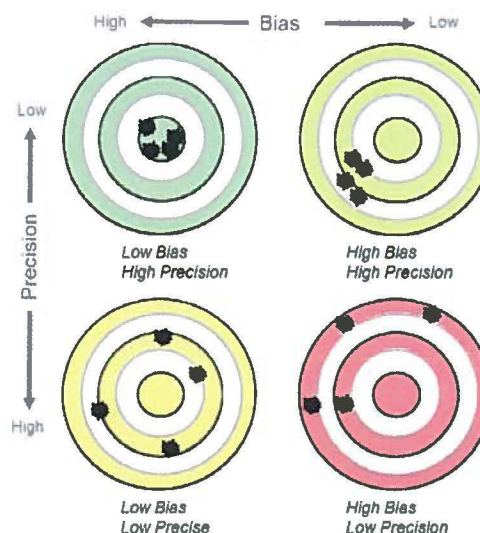


What is Accuracy?

Accuracy is determined by an instrument’s precision and its bias. How close together are the values to each other and how close are the results to the correct answer. Precision (repeatability) is how close the returned values are to each other. Bias (deviation) is how far from the correct answer they are. An accurate device must have High Precision and Low Bias.

Surface velocities tend to be highly precise (repeatable); they are highly likely to return the value they are designed to acquire, over and over again. But does the mean they are accurate?

Again, accuracy requires both high precision and low bias. Bias measures how close the results are to the correct answer. So, to confirm the bias, we need to ask “what is the correct answer?” What determines flow accuracy from each depth reading? And, what is the correct answer for an accurate velocity reading?



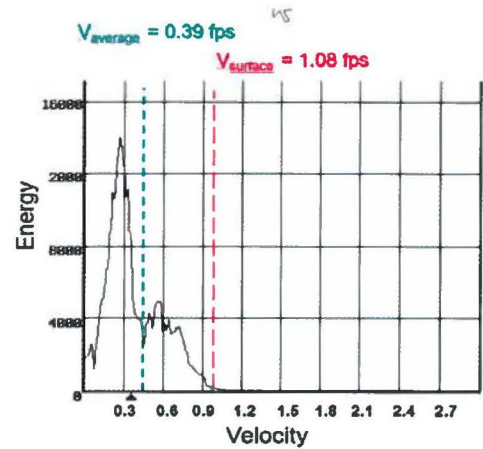
How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

The Correct Answers:

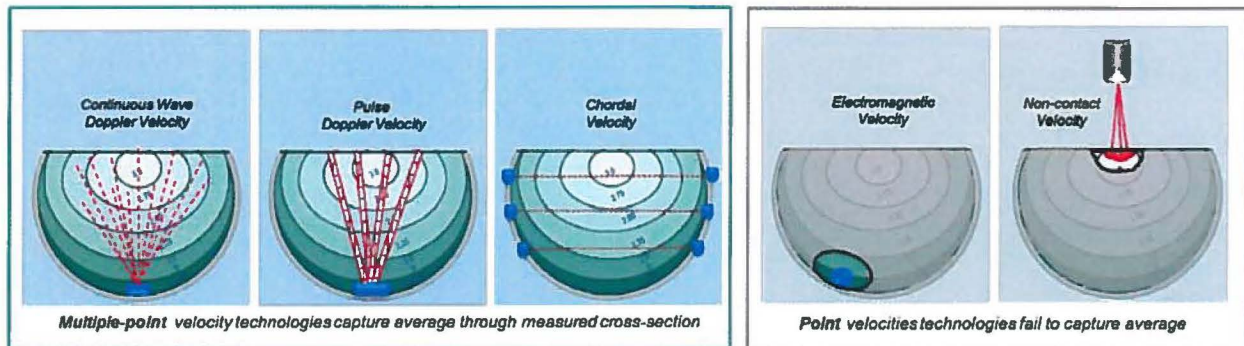
Average Velocity and the Wetted Area

The continuity equation is based on the average velocity within a cross-section, not a velocity. It requires a sensor to return the average velocity values or provide the ability to reliably and consistently interpolate an average from the returned values. Without average velocities, hydraulic conditions of backwater, reverse flow, pressurized flow, undertow, eddies and transverse flow will go unrecognized and severely reduce the accuracy of the measured flow rate.



$$Q_c = V_{\text{avg}} \times \text{Area}$$

Velocity Measurements



Multiple Point Velocity Technologies

These technologies penetrate the cross-sectional area to obtain an average velocity.

Continuous Wave Doppler – Primary manufacturers include HACH, ISCO, FloWav, ADS and Badger. These technologies measure the frequency shift (Doppler Principle) as sound is reflected from particles within the flow. A beam of sound penetrates the cross section of flow where a velocity spectrum is generated from each firing. Different algorithms are used by each manufacturer to process the signals to derive the average velocity.

How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

The effective range of Doppler velocity technologies that use a “fixed beam” is less than 30-inches. Exclusive only to the ADS, “adjustable” velocity parameters enable the user to ramp up the sensitivity for use in larger depth of flow applications up to about 100-inches depending on turbidity.

The stated effective range varies among manufacturers, in addition to, the repeatability. Most have stated velocity ranges between 0.5 fps up to 15 fps. However, only a couple can measure reliably above speeds of 7.5 fps. Some manufacturers offer the ability to also record reverse velocity. Relative accuracies for recording average velocity for most continuous wave technologies is achievable to within +/- 10%.

Because this equipment is submerged, it is prone to debris and requires more frequent maintenance than non-contact sensors.

Pulse Doppler – Primary manufacturers include ISCO, ADS and Sontek. Derived from ocean wave measurement technologies, this technology refines the continuous-wave Doppler technology by associating the readings to their locations within the cross section. This reduces errors using multiple “bins” of velocity spectra to integrate an average velocity.

The effective range of this technology requires a minimum of 9-inches of flow depth to transmit and receive reading location measurements. For this reason, this technology is better suited for large pipe applications.

Relative accuracy outperforms “fixed beam” continuous-wave Doppler technologies for flow depths in excess of 30-inches and compares favorably to adjustable continuous-wave.

Chordal Velocity – Primary manufacturers include Badger Meter and Accusonics. Also referred to as “Time-of-flight”, this technology measures the sound signal lag between a transmitter and receiver induced by the speed of the flow. Multiple chords are used to capture the average velocity across multiple velocity contours.

Developed initially for hydropower applications, this technology is generally limited to larger pipes above 48-inches to provide sufficient space for the transmitters and receivers and sufficient minimum flows above the lowest beam location. Multiple beams are required to increase the accuracy. This is the most expensive of the technologies evaluated, however accuracies within 5% are achievable.

Point Velocity Technologies

These technologies measure a specific point within the flow and require interpolation to derive an average velocity.

Electromagnetic – Primary manufacture is limited to HACH. Derived from potable water applications, this technology measures the voltage drop across induced by the flow current. The effective range is within a magnetic flux of approximately 3-inches at the location of the probe. Installed at the bottom of the pipe along the wall, it measures the slowest velocities despite changes in depth. For this reason, this technology has been abandoned as a viable continuous measurement of velocity because it only measures a localized 3-inch bulb at the mounted location. On occasion, this technology continues to creep into unsuspecting flow monitoring programs only to result in additional analysis efforts and highly questioned data by modelers and end users.

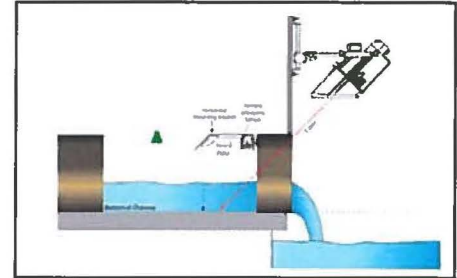
How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

Because the effective area of electromagnetic velocity sensors is within a 3-inch magnetic flux zone, they are highly proficient at obtaining discrete velocities for use in developing an average velocity profile.

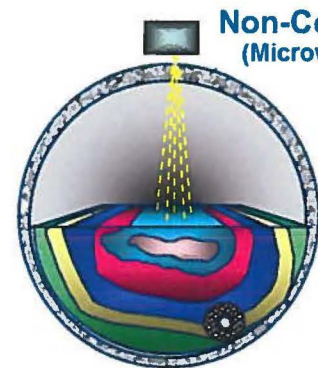
Non-contact Velocity – Primary manufacturers include ADS Surface Velocity (CS5), HACH FlowDar and ISCO Laser. Also marketed as microwave and laser, non-contact velocity sensors capture a surface velocity value, penetrating less than ½-inch. The ISCO Laser claims to penetrate 4-6 inches, which still limits the measurement of entire cross section for large pipe applications.

These measurements are not the average velocity needed for the continuity equation. Instead, they are “point velocities”, capturing the speed of the flow at only a specific location, the surface. Localized readings must be interpolated into an average. This becomes increasing more error prone the deeper the depth of flow. For example, if only the first ½-inch of 60-inches is measured, the average velocity for the remaining 59 ½-inches of flow is indeterminate.



This methodology is very similar to the application of electromagnetic velocity readings, which have been long-regarded as inferior and unfit for use in gravity sewer installations. Errors in the “point” velocity readings alone can exceed 300% due to the difficulty in deriving a depth to discharge relationship from only an isolated measured location.

Since point velocity devices fail to capture the average velocity, each meter velocity value must be correlated to an average at various depths, from shallow to full pipe. This requires an extensive amount of “hydraulic profiles” to develop a depth to discharge relationship based on the correlation of each point velocity reading to a manually calculated average. Still yet, the technology is incapable of accounting for non-uniform flow characteristics beneath the surface such as backwater, undertow and swirling, in addition to the effects of head pressure and pump stations.



Electromagnetic

Optimal Use of Non-contact Velocities

Like electromagnetic sensors, non-contact surface velocity sensors are not fit for use as the primary velocity measurement device for most applications. Failing to measure the velocities below the surface induces significant errors in volatile hydraulic locations prone to non-free flow conditions.

The use of these sensors is limited to locations where the hydraulics remain uniform throughout the expected range of depths; where the ratio of the measured point velocity to the average does not vary. Such conditions are constrained to shallow, slow hydraulics where the variances from the fastest to the slowest velocities remain constant. However, they are poor candidates in locations where the flow depths or velocities increase significantly above shallow, slow flow rates.

Non-contact velocity sensors may be used as redundant devices to measure velocities and lower flow depths where submerged sensors may be incapable (less than 1 ½-inches) or where siltation may affect the performance of submerged sensors.

How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

Non-contact velocity sensors are often used in caustic environments where submerged equipment may get damaged.

Wetted Area

In the continuity equation, “A” refers to the wetted area. The wetted area requires geometric measurements of the pipe, siltation and the depth of flow to determine the cross-sectional area of the flow.

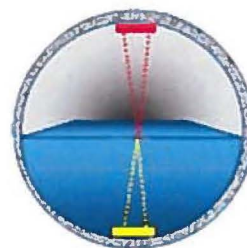
The industry standard for the primary depth measuring device is an ultrasonic level sensor. Manufacturers offer two types of ultrasonic sensors: (1) “Down-looking” and (2) “Up-looking”.

Both types must be mounted parallel to the surface of the flow. A “down-looking” ultrasonic is installed at the crown of the pipe, while an “up-looker” at the bottom center of the pipe.

Ultrasonic Technology

Primary manufacturers include ADS, ISCO, HACH, Sontek and FloWav.

Ultrasonic technology operates by measuring the elapsed time for an ultrasonic signal to travel to the flow surface and back. Using the speed of sound and pipe geometry, the elapsed time is used to compute a distance to derive a depth of flow.



Single-crystal ultrasonic sensors have a significant “deadband” where they are incapable of measuring the depth. This occurs because the sensor must function as a transmitter and transceiver. It must transmit a sound wave, turn itself off, wait until the sound vibration has dissipated, turn itself back on and then receive the signals. This period of time generally correlates to about 6-inches for most ultrasonic sensors. Manufacturers have been able to reduce the impacts of a single crystal deadband through the use of reflectors and mounting the sensor horizontally.

Multiple-crystal ultrasonic sensors significantly reduce the deadband by having one sensor transmit while the other receives. As a result, the deadband can be reduced to about ½-inch.

Installation/Operation

The ultrasonic sensor is typically installed within the pipe and does not record depths above full pipe, unless it is installed as a “surcharge mount” (higher up the manhole). Manufacturers have different methods to engage a pressure sensor technology when the flow level compromises the use of the ultrasonic sensor.

- ADS meters continuously measure redundant depths with one or two ultrasonic sensors and pressure sensor to derive a composite depth entity. The result is a seamless depth through surcharge situations.
- HACH meters activate the pressure sensor once the ultrasonic has been compromised and patches the depth entities. This method leaves a void in the depth data entity as the equipment switches from an ultrasonic to a pressure based depth.
- ISCO meters must be manually substituted in the event the ultrasonic sensor is not functioning.

How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

Pressure Transducers

Pressure transducers are offered by most flow meter manufacturers. There are six major manufacturers for pressure transducers. This technology measures the pressure differential between ambient air pressure and the head pressure induced by the depth of flow. The deflection of the transducer is measured and converted to a depth of flow.

Pressure sensors have long been regarded as inferior for use in continuous flow monitoring programs. Because they are mechanical devices, they are prone to drift and hysteresis from sensor fouling, moisture and exceeding the design pressure. Sensor precision is 0.5% of full scale for most manufacturers. A 15 psi with an effective range of about 35-feet, would have a stated accuracy of +/- 2 inches. In 8-inches of flow, this would equate to more than a 25% error in the calculated flow rate.

Manufacturers include various techniques to prevent moisture from entering the sensor including hydrophobic filters and oil chambers. These methods can provide some benefit for limiting moisture, but are not effective long term.

Because of these issues and the inherent inaccuracy, pressure transducers are should only be used as redundant depth devices.

Are Calibrations Necessary for Gravity Flow Monitoring?

This question is the most differentiating question when it comes to the selection of appropriate technologies in gravity sewers. While the question most often pertains to validating the accuracy of the calculated flow rate, responses highlighting the accuracy of the instrumentation are misleading.

There is a common misbelief that the instrumentation should be capable of consistently and accurately measuring the flow rate with limited periodic calibrations, much like pressurized water systems. Although the continuity equation is used for both gravity and pressurized systems, the ability to capture the necessary parameters of depth and velocity differ, greatly.

For pressurized systems, the area is fixed; the cross-sectional area of the pipe and a depth measurement is unnecessary. For gravity systems, the depths will range from zero to full pipe. Ultrasonic depth sensors are extremely precise and undeviating, making them highly accurate. Pressure sensors are not precise and are deviating, and should therefore, not be used as primary depth measuring devices where high accuracy is required.

Velocity, however, is a much different story. Pressured systems generally remain stable at depth (full pipe) and have a predictable and consistent uniformity of flow. Technologies such as electromagnetic, magnetic induction, polysonic and transit-time are highly capable of measuring the average velocity throughout the full pipe cross section; emphasis being on average velocity. However, they become highly inaccurate if the depth is not full pipe, much like gravity systems.

Unlike full-pipe pressurized systems, the average velocity of a partially filled pipe is not uniform and highly unpredictable. Furthermore, the technologies vary widely in what the measure.

How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

Calibrations are used to validate both the accuracy of each sensor and the flow rate. Some manufacturers contend calibrations are not necessary for their devices, claiming their sensors are accurate, that they do not need constant calibration and that they remain calibrated. At the sensor level, this is a valid claim. These devices are very reliable, non-intrusive and highly precise (repeatable).

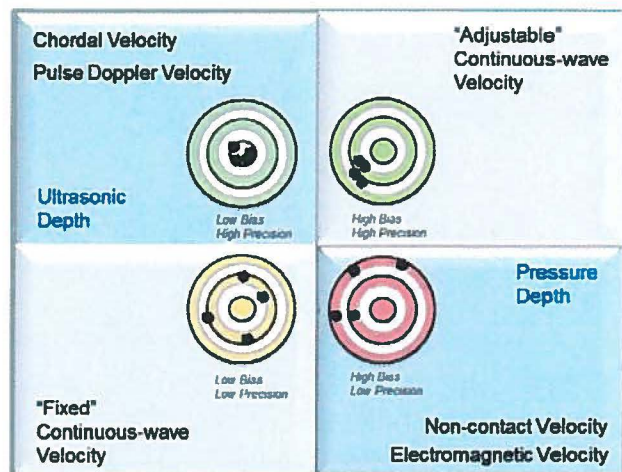
But what about the accuracy in measuring the flow rate? In addition to sensor precision, flow rate accuracy further requires an understanding of the bias, or deviation from the correct answer. For use in the continuity equation, the correct answer it is required to compare against is the average velocity, which multi-point velocity technologies acquire and point velocities technologies fail to. For calculating flow rates, the claim that calibrations is simply not true, especially non-contact velocity sensors.

Furthermore, the continuity equation also requires the cross-sectional area of the flow. When silt is introduced or washed away from a measured pipe section, the cross-sectional area will change. This is part of the hydraulic profile process and essential to measure, routinely.

SUMMARY:

Flow rate accuracy requires the sensors must be both precise and undeviating. They must be repeatable and be capable of measuring the correct parameters to calculate the flow rate.

- High Accuracy – Chordal velocity, pulse Doppler and magnetic induction (inverted syphon) technologies are the most accurate technologies for measuring the average velocity. Ultrasonic sensors are the most accurate for measuring the depth of flow. Each of these technologies is highly repeatable and undeviating (high precision and low bias).
- Acceptable Accuracy – Continuous-wave Doppler technologies have high success in many applications, but require continuous validation (calibrations) to account for the highly dynamic flow regimes found in gravity sewers. Manufacturers that offer an adjustable velocity range provide greater applications than fixed continuous-wave technologies.
- Unacceptable Accuracy – These technologies are incapable of measuring the average velocity and should not be used as primary velocity measuring devices where high accuracy is required. These point velocities include Electromagnetic and Non-contact Surface velocities, weirs and depth only technologies. Although these technologies are precise in what they measure, they fail to measure the correct average velocity parameter. For depth, pressure sensors lack in both repeatability and deviation.



How Accurate Are Gravity Sewer Flow Meters?

Jeff Plymale

Additional Points:

1. Accurate flow rates require high sensor repeatability, low deviation and the ability to measure the intended parameter (depth and average velocity).
2. There is no one technology that fulfills all application requirements in gravity sewers and each must be correctly used within their optimal performance envelopes.
3. Calibrations are necessary to ensure the sensors remain precise and undeviating in a highly volatile and dynamic flow environment
4. Hydraulic profile calibrations differ from sensor calibrations and are necessary to validate the accuracy of the calculated flow rate
5. Calibrations must include silt measurements to account for changes in cross-section area
6. Multipoint velocity technologies including continuous-wave Doppler, Pulse Doppler and Chordal are the most appropriate technologies for measuring the average velocity.
7. Point velocities including non-contact surface velocities and electromagnetic should not be used as primary velocity devices if accuracy is a prerequisite.
8. Ultrasonic sensors are the most appropriate technologies for measuring the depth of flow.
9. Pressure sensors should not be used as primary depth devices if accuracy is a prerequisite.

**EXHIBIT C
CITY OF AUSTIN, TEXAS
LIVING WAGES CONTRACTOR CERTIFICATION**

SOLICITATION NO. RFP EAD0128, Flow Monitoring

Pursuant to the Living Wages provision (reference Section 0400, Supplemental Purchase Provisions) the Contractor is required to pay to all employees directly assigned to this City contract a minimum Living Wage equal to or greater than \$13.50 per hour.

- (1) The below listed employees of the Contractor who are directly assigned to this contract are compensated at wage rates equal to or greater than \$13.50 per hour:

Employee Name	Employee Job Title
P. Jeffrey Plymale Daniel H. Jackson, P.E.	Chief Operating Officer Vice President
Jeffrey G. Merritt Elizabeth Y. Aguin, P.E.	Field Operations and Safety Manager Data Manager
Jonathan Kerr Kenneth W. Garrett	Equipment Manager Data Communications
John D. Becker Michael A. Bray	Field Supervisor Field Supervisor
Trevor Emmerling Richard Brodner	Field Technician Field Technician
Chevese Pippins Rajendra Tamrakar, P.E.	Field Technician Senior Data Analyst
Margaret Fryer Estela Alvarez	Data Analyst Data Analyst

- (2) all future employees assigned to this Contract will be paid a minimum Living Wage equal to or greater than \$13.50 per hour.
- (3) Our firm will not retaliate against any employee claiming non-compliance with the Living Wage provision.

A Contractor who violates this Living Wage provision shall pay each affected employee the amount of the deficiency for each day the violation continues. Willful or repeated violations of the provision or fraudulent statements made on this certification may result in termination of this Contract for Cause, subject the firm to possible suspension or debarment, or result in legal action.

I hereby certify that all the listed employees of the Contractor who are directly assigned to this contract are paid a minimum Living Wage equal to or greater than \$13.50 per hour.

Contractor's Name:

BJN GROUP, INC.

Signature of Officer
or Authorized
Representative:

[Signature]

Date:

12/20/16

Printed Name:

P. Jeffrey Plymale

Title

Executive Vice President / COO

**EXHIBIT D
CITY OF AUSTIN, TEXAS
LIVING WAGES EMPLOYEE CERTIFICATION**

Contract Number:	Description of Services: Wastewater Flow Monitoring Services
Contractor Name: RJN Group, Inc.	

Pursuant to the Living Wages provision of the contract (reference Section 0400, Supplemental Purchase Provisions), the Contractor is required to pay to all employees directly assigned to this City contract a minimum Living Wage equal to or greater than \$13.50 per hour. In addition, employees are required to certify that they are compensated in accordance with the Living Wage provision. Contractors are prohibited from retaliating against any employee claiming non-compliance with the Living Wage provision.

I hereby certify that I am directly assigned to this contract and that I am compensated at wage rates equal to or greater than \$13.50 per hour.

Employee's Title:	
Signature of Employee	Date
Type or Print Name	

(Witness Signature)

(Printed Name)

EXHIBIT E



City of Austin Best and Final Offer (BAFO)							
EAD0128- Flow Monitoring							
The City of Austin will utilize the information on this BAFO for analyzing competing proposals and selection purposes.							
Vendor Name:	RJN Group, Inc.						
Vendor Signature:							
Date:	12/13/2016						
Instructions:							
<p>An entry of "0" (zero) will be interpreted by the City as a no-charge (free) item and the City will not pay for that item. Items listed below are required to have a price or an entry of 0. The quantities noted below are estimates and not a guarantee of actual volume. The City does not guarantee the purchase of the quantities listed. Quantities are provided as a guide. Actual purchases may be more or less.</p>							
Special Instructions:							
<p>For the base, price items no. 4 and no. 8 will be paid based upon on raw depth uptime as detailed in Section 9.4a of the Scope of Work. It is noted that processing of flow meter data and verification points for depth and velocity are required as specified in the Contract Documents.</p> <p>For the optional items no. 24 and no. 25, payment shall be based on Raw Q uptime as detailed in Section 9.4b of the Scope of Work. Note that optional bid items no. 24 and no. 25 are additional payments to cover the costs of additional hardware and other efforts including the services related to providing, installing, maintaining, collecting, and processing reliable velocity and depth measurement data to meet the Raw Q up time requirement which is above and beyond base bid items. If these options are selected then the payment will include both the base bid items and the optional bid items.</p>							
Price Sheet Line	Line Description	UNIT	ESTIMATED QUANTITY	PRICE PER UNIT	PRICE PER MONTH	PRICE PER YEAR	TOTAL PRICE
1	Removal of 4 Meters - Removal of Existing Meters at all depth and sewer main sizes. The quantity is for four (4) metering sites at the beginning of the contract period.	EACH	4	\$1,000			\$4,000
2	Installation of 45 Permanent Meters – Installation of flow meters at all depth and sewer main sizes. This is the installation of the each flow meter at each site. The quantity is for forty five (45) metering sites installed at the beginning of the contract period.	EACH	45	\$1,500			\$67,500
3	Removal of 45 Permanent Meters – Removal of flow meters from all depths and all sewer main line sizes at the end of contract period. This is the removal of each flow meter from each site. The quantity is forty five (45) metering sites removed at the end of the contract period.	EACH	45	\$500			\$22,500
4	45 Permanent Meters – Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site for one month. This includes the monthly metering and raw data. Payment will be based on raw depth uptime as detailed in Section 9.4 a of the Scope of Work.	EACH SITE PER MONTH	45	\$480	\$21,600	\$259,200	\$259,200
5	45 Permanent Meters – Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site for one month. This includes the processing raw data and QA/QC as detailed Section 8. Payment will be based of processing the data per Section 8 of the Scope of Work.	EACH SITE PER MONTH	45	\$450	\$20,250	\$243,000	\$243,000
6	Installation of 25 Rotating Meters – Installation of flow meters at all depth and sewer main sizes. This is the installation of the each flow meter at each site. The quantity is twenty five (25) metering sites installed at the beginning of each twelve (12) month contract period.	EACH	25	\$1,500			\$37,500
7	Removal of 25 Rotating Meters – Removal of flow meters from all depths and all sewer main line sizes. This is the removal of each flow meter from each site. The quantity is twenty five (25) metering sites removed at the end of each twelve (12) month contract period.	EACH	25	\$500			\$12,500
8	25 Rotating Meters – Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site for one month. This includes the monthly metering and raw data. Payment will be based on raw depth uptime as detailed in Section 9.4 a of the Scope of Work.	EACH SITE PER MONTH	25	\$480	\$12,000	\$144,000	\$144,000
9	25 Rotating Meters – Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site for one month. This includes the processing raw data and QA/QC as detailed Section 8. Payment will be based of processing the data per Section 8 of the Scope of Work.	EACH SITE PER MONTH	25	\$450	\$11,250	\$135,000	\$135,000

Price Sheet Line	Line Description	UNIT	ESTIMATED QUANTITY	PRICE PER UNIT	PRICE PER MONTH	PRICE PER YEAR	TOTAL PRICE
10	Installation of Temporary Meters – Installation of temporary flow meters at no more than 30 feet deep or 72 inches in diameter. This is the installation of the each flow meter at each site. The quantity is up to eighteen (18) metering sites for each twelve (12) month contract period.	EACH	18	\$1,500			\$27,000
11	Removal of Temporary Meters – Removal of temporary flow meters from each temporary site. The quantity is up to eighteen (18) metering sites for each twelve (12) month contract period.	EACH	18	\$500			\$9,000
12	Temporary Meters – Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. This includes the monthly metering and raw data. The estimated quantity is up to thirty (30) location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based on raw depth uptime as detailed in Section 9.4 a.	LOCATION MONTH	30	\$2,400			\$72,000
13	Temporary Meters – Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site per month. This includes the processing raw data and QA/QC as detailed Section 8. The quantity up to thirty (30) locations location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based of processing the data per Section 8.	LOCATION MONTH	30	\$420			\$12,600
14	Allowance For Permits – Compensation for permit costs shall be based upon the actual costs of permits substantiated with a City of Austin Invoice. The Contractor's efforts to coordinate, assist, and oversee permits shall be subsidiary and are not included as part of this allowance. This allowance covers the cost of permits for both the base items and any option items, if selected.	LS	1	\$5,000			\$5,000
15	All Other Items. The contractor shall include related services in their price proposal including, but not limited to data and equipment, computer or cell compatibility, reporting, transferring software, training, maintenance service, debris removal, permits and licenses, removal emergency safety plan.	LS	1	\$5,000			\$5,000
16	Processing flow monitoring data after a major rain event approximately 10 times per year. This also includes a reasonable amount of effort to incorporate third-party stream data from readily available sources such as USGS.	MAJOR RAIN EVENT	10	\$8,925			\$89,250
Base	TOTAL BAFO FOR BASE						\$1,145,050

Price Sheet Line	Line Description	UNIT	ESTIMATED QUANTITY	PRICE PER UNIT	PRICE PER MONTH	PRICE PER YEAR	TOTAL PRICE
17	Installation of 25 Rotating Level Indicating Meters – Installation of level indication only flow meters at all depth and sewer main sizes. This is the installation of the each flow meter at each site. The quantity is twenty five (25) metering sites installed for each twelve (12) month contract period.	EACH	25	\$250			\$6,250
18	Removal of 25 Rotating Level Indicating Meters – Removal of level indicating meters from all depths and all sewer main line sizes at the end of contract period. This is the removal of each flow meter from each site. The quantity is twenty five (25) metering sites removed for each (12) month contract period.	EACH	25	\$250			\$6,250
19	Rotating Meters Level Indicating Meters – Monthly Metering, Interactive Data Delivery, and Telog Enterprise Data Upload for twenty five (25) sites per month. This includes the monthly metering and data. Payment shall be based on raw depth uptime. Uptime shall be defined as the number of measurement intervals where a flow value can be calculated from a measured depth for a common time interval divided by the total number of measurement intervals in the reporting period.	EACH SITE PER MONTH	25	\$210	\$5,250	\$63,000	\$63,000
20	Installation of Temporary Meters – Installation of temporary flow meters at no more than 30 feet deep or 72 inches in diameter. This is the installation of the each flow meter at each site. The quantity is up to twenty four (24) metering sites for each twelve (12) month contract period.	EACH	24	\$1,500			\$36,000
21	Removal of Temporary Meters – Removal of temporary flow meters from each temporary site. The quantity is up to twenty four (24) metering sites for each twelve (12) month contract period.	EACH	24	\$500			\$12,000
22	Temporary Meters – Monthly Metering, Raw Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. This includes the monthly metering and raw data. The quantity is up to forty eight (48) location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based on raw depth uptime as detailed in Section 9.4 a of the Scope of Work.	LOCATION-MONTH	48	\$2,400			\$115,200
23	Temporary Meters – Processed flow monitoring Data Delivery and Telog Enterprise Data Upload for each site per month. This includes the processing raw data and QA/QC as detailed Section 8. The quantity is up to forty eight (48) location-months within each twelve (12) month contract period. A temporary flow meter location-month is defined as a flow meter in a location for a period of one month. For example: 3 temporary flow meter location-months could be a combination of 3 flow meter locations for up to one month each or 1 flow meter location for a 3 months duration. The City reserves the right to have different length of duration for each flow meter location. Payment will be based of processing the data per Section 8 of the Scope of Work.	LOCATION-MONTH	48	\$450			\$21,600
24	45 Permanent Meters, Additional Efforts Associated with Raw Q Uptime – Includes Monthly Metering, Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. Payment shall be based on Raw Q uptime as detailed in Section 9.4 b of the Scope of Work. Note this is the additional cost above and beyond the base bid item no. 4. If selected, payment will include both bid item no. 4 and bid item no. 24.	EACH SITE PER MONTH	45	\$150	\$6,750	\$81,000	\$81,000
25	25 Rotating Meters, Additional efforts associated with Raw Q Uptime – Includes Monthly Metering, Interactive Data Delivery, and Telog Enterprise Data Upload for each site per month. Payment shall be based on Raw Q uptime as detailed in Section 9.4 b of the Scope of Work. Note this is the additional cost above and beyond base bid item no. 8. If selected, payment will include both bid item no. 8 and bid item no. 25.	EACH SITE PER MONTH	25	\$150	\$3,750	\$45,000	\$45,000
26	45 Permanent Meters, Additional efforts associated with Monthly Verifications – This includes monthly verifications of each FMS per Section 5.11 of the Scope of Work. The quantity is each site per month. Note this is the additional cost for monthly verifications above and beyond the base bid. If selected, payment will include the base bid and this option.	EACH SITE PER MONTH	45	\$100	\$4,500	\$54,000	\$54,000
27	25 Rotating Meters, Additional efforts associated with Monthly Verifications – This includes monthly verifications for each FMS in Option # 1 per Section 5.11 of the Scope of Work. The quantity is for each site per month. Note this is the additional cost for monthly verifications above and beyond the base bid. If selected, payment will include the base bid and this option.	EACH SITE PER MONTH	25	\$100	\$2,500	\$30,000	\$30,000
Options	TOTAL BAFO FOR OPTIONS						\$470,300
Options	TOTAL BAFO FOR BASE & OPTIONS						\$1,615,350

EXHIBIT F

Section 0900: Minority- and Women-Owned Business Enterprise (MBE/WBE) Procurement Program No Goals Form

SOLICITATION NUMBER: EAD0128

PROJECT NAME: Wastewater Flow Monitoring Services

The City of Austin has determined that no goals are appropriate for this project. Even though goals were not assigned for this solicitation, the Bidder/Proposer is required to comply with the City's MBE/WBE Procurement Program, if areas of subcontracting are identified.

If any service is needed to perform the Contract and the Bidder/Proposer does not perform the service with its own workforce or if supplies or materials are required and the Bidder/Proposer does not have the supplies or materials in its inventory, the Bidder/Proposer shall contact the Small and Minority Business Resources Department (SMBR) at (512) 974-7600 to obtain a list of MBE and WBE firms available to perform the service or provide the supplies or materials. The Bidder/Proposer must also make a Good Faith Effort to use available MBE and WBE firms. Good Faith Efforts include but are not limited to contacting the listed MBE and WBE firms to solicit their interest in performing on the Contract, using MBE and WBE firms that have shown an interest, meet qualifications, and are competitive in the market; and documenting the results of the contacts.

Will subcontractors or sub-consultants or suppliers be used to perform portions of this Contract?

No _____ If no, please sign the No Goals Form and submit it with your Bid/Proposal in a sealed envelope

Yes ☒ _____ If yes, please contact SMBR to obtain further instructions and an availability list and perform Good Faith Efforts. Complete and submit the No Goals Form and the No Goals Utilization Plan with your Bid/Proposal in a sealed envelope.

After Contract award, if your firm subcontracts any portion of the Contract, it is a requirement to complete Good Faith Efforts and the No Goals Utilization Plan, listing any subcontractor, sub-consultant, or supplier. Return the completed Plan to the Project Manager or the Contract Manager.

I understand that even though goals were not assigned, I must comply with the City's MBE/WBE Procurement Program if subcontracting areas are identified. I agree that this No Goals Form and No Goals Utilization Plan shall become a part of my Contract with the City of Austin.

RJN Group, Inc.

Company Name

Alan J. Hollenbeck, PE, President/CEO

Name and Title of Authorized Representative (Print or Type)



Signature

7/14/2016

Date

Minority- and Women-Owned Business Enterprise (MBE/WBE) Procurement Program No Goals Utilization Plan
(Please duplicate as needed)

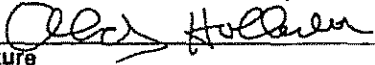
SOLICITATION NUMBER:	EAD0128
PROJECT NAME:	Wastewater Flow Monitoring Services

PRIME CONTRACTOR / CONSULTANT COMPANY INFORMATION

Name of Contractor/Consultant	RJN Group, Inc.		
Address	111 West Anderson Lane, Suite D203A		
City, State Zip	Austin, Texas 78752		
Phone Number	(512) 451-8204	Fax Number	(972) 437-2707
Name of Contact Person	P. Jeffrey Plymale		
Is Company City certified?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> MBE/WBE Joint Venture <input type="checkbox"/>		

I certify that the information included in this No Goals Utilization Plan is true and complete to the best of my knowledge and belief. I further understand and agree that the information in this document shall become part of my Contract with the City of Austin.

Alan J. Hollenbeck, PE, President and CEO
Name and Title of Authorized Representative (Print or Type)


Signature

7/14/2016
Date

Provide a list of all proposed subcontractors / sub-consultants / suppliers that will be used in the performance of this Contract. Attach Good Faith Effort documentation if non MBE/WBE firms will be used.

Sub-Contractor / Sub-Consultant	ADS, LLC		
City of Austin Certified	MBE <input type="checkbox"/> WBE <input type="checkbox"/> Ethics / Gender Code: <input checked="" type="checkbox"/> Non-Certified		
Vendor ID Code	VC0000102812		
Contact Person	Chuck Franklin	Phone Number	(281) 933-0951
Amount of Subcontract	\$539,000		
List commodity codes & description of services	96169, provide flow monitoring equipment and equipment installation/servicing		

Sub-Contractor / Sub-Consultant			
City of Austin Certified	MBE <input type="checkbox"/> WBE <input type="checkbox"/> Ethics / Gender Code: <input type="checkbox"/> Non-Certified		
Vendor ID Code			
Contact Person		Phone Number	
Amount of Subcontract	\$		
List commodity codes & description of services			

FOR SMALL AND MINORITY BUSINESS RESOURCES DEPARTMENT USE ONLY:

Having reviewed this plan, I acknowledge that the proposer (HAS) or (HAS NOT) complied with City Code Chapter 2-9A/B/C/D, as amended.

Reviewing Counselor 

Date 7/21/16

Director/Deputy Director 

Date 7-21-16

RJN

1. Plans – Including Health and Safety and QAQC

Did the Contractor submit their HASP and QAQC plan with their proposal? **Yes**

Provide detail examples of the processes and procedures their company does to provide a safe working environment and reliable and quality flow monitoring data?

A very detailed HASP was provided explaining good practices, trainings, and management responsibilities for a safe work environment.

Is the confined Space Safety Plan provided? **A confined space entry program is provided prior to performing manhole entry. RJN employees are required to attend a four-hour classroom based confined space entry training with 12 months of internet based training. Their policies and procedures are further explained on page 107.**

Are confined Space Entry training certifications provided? **Yes**

What are the procedures for initial meter installation setup, and calibration, including defining initial set up and troubleshooting should be in conformance with manufacturers recommendation? **RJN is following manufacturers recommendations by initially preparing the equipment prior to deployment. They explained how they will install meters for different sites and they require 25% of installation be audited by a Field Operations Manager or Project Manager.**

Are procedures for calibrating meters in conformance with manufacturers recommendations? **Didn't mention this in calibration section but they explain calibrating meters and follow other manufacturers recommendations.**

Are procedures for developing the initial velocity profile described? **Described the instrument used and what a profile is. Described taking multiple velocity measurements where the combined depth of flow and pipe diameter are to create the profile.**

Are procedures for flow balancing given? **Flow balancing is detailed on page 141.**

Are procedures for addressing data anomalies provided? **They are described but in the Project Approach and Processing Data section.**

2. Prior Experience, Personal Qualifications and Resources

Is detailed description of applicable prior experience associated with flow monitoring on pipe sizes ranging from 6-96 inches provided? **RJN worked with pipes up to 243 inches in diameter. They have achieved 98% meter uptime.**

Is detailed experience in the following topics provided: Detailed descriptions of the following items were bulleted but not detailed. They gave the scope of each project but not details of all topics requested. Worth asking the panel.

Flow monitoring services including wastewater flow meter installation?

Calibration?

Maintenance?

Data Collection?

Data Verification?

Telog EDF data retrieval?

Telog EDF data transfer?

Flow data analysis?

Quality Assurance and Quality Control?

Are there descriptions of individual experience for personnel who are actively engaged in this project? Yes

Are there three customer references services for projects with a minimum of 100 meters per project equivalent to the size and scope described in this RFP? Yes

Are names and qualifications of all professional personnel including the Project Manager, Field Operations Manager, Field Technicians, and Data Analyst provided? Yes

Are resumes (not more than one page) for each staff member, describing their professional qualifications (education, licenses, certifications for working in confined spaces, and associations) and relevant experience provided? Yes

Are details on resources the firm has available for this project provided? They have resources they provide but not in these sections. The resources are further detailed in equipment resources.

3. Project Approach and Processing Data

Did the contractor provide how the data will be collected? Enterprise Client, RJN Project Manager, and GATAR data collectors-efficiently handle data collection and review, data analysis, equipment management and maintenance, field crew scheduling, and also facilitate online reporting. Data will be collected at five-minute intervals

How is the data being verified and checked? Evaluating long-term relationships. Ensuring data is consistent with manual confirmations (verifications). Utilizing upstream and downstream sites (flow balancing) and ensuring data is consistent with design curves.

What are the methods and procedures for field verifications? When an imbalance occurs, the data must be reanalyzed and adjusted within the margin of available

field verifications. Data is never to be adjusted just to “make it fit”, without field verifications to justify it.

How is raw data being collected? The raw data will be collected via telemetry and transmitted to Telog Enterprise. Data analysis and the O&M field crews will have immediate access to collected data. All data is stored in Telog Enterprise in its “raw” form without any adjustments. Adjustments and corrections are stored as separate data items and applied to the “raw” data to derive the “final” data. Data plots will be generated that include raw data, edited data, and verifications to evaluate and validate the edited data.

When are site visits being performed? At the beginning of the project and routine site inspections will be performed to confirm pipe measurements and site hydraulics. During the “settling in” period, crews will visit sites to obtain necessary verifications and make efforts to prevent sensor failure, minimize equipment maintenance issues, avoid excessive siltation, and configure the monitoring equipment to capture hydraulic variations or anomalies. In the event that the telemetry is not functional or in need of repair, routine data collection will be made by crew visitation under the RJN corrective maintenance protocols. Preventive meter equipment visits are based on the FACTS score (pg 77).

Give details and steps how raw data will be processed for final data? All data is stored in Telog Enterprise in its “raw” form without any adjustments. Adjustments and corrections are stored as separate data items and applied to the “raw” data to derive the “final” data. Data plots will be generated that include raw data, edited data, and verifications to evaluate and validate the edited data.

How will the contractor adjust, if required, any flow meter data for the City? The fundamental RJN guiding philosophy is that no correction or adjustment factor can be applied to the data unless there is a verifiable field activity, verification/calibration record, or recognized hydraulic principal to support it. Data will be corrected and adjusted according to verification measurements and flow balances among connecting sites. Using manual verifications and flow balancing, the depth and velocity traces will be “adjusted”.

Detail the method by which the data will be transferred on an hourly basis from the meter to the City’s FTP site and the City’s Enterprise Server? RJN will enable raw flow data from the ADS Triton flow meter to be automatically posted to the City’s dedicated FTP site on an hourly basis. This will be done through the incorporation of two modules: RPM Data Conversion Module and E-AIMS Module. RJN will assist the City with the integration of the E-AIMS Module.

Are details and examples of work products and reports as listed in Section 0500 Scope of Work, Item 10.0 Reports provided? RJN will submit a Flow Stabilization Report to demonstrate that flow-monitoring equipment is acquiring accurate and reliable flow data. The Report will be submitted to the City for review and approval

within two months of receiving the notice to proceed. They will also provide an uptime report on monthly invoicing.

4. Equipment Resources

Did the contractor give details on the specific equipment proposed for the project?

The contractor is utilizing the ADS Triton+ area velocity application and the ADS ECHO for level-only sensor. According to the scope the city requires a logger that shall be able to provide both a depth and flow data. It wasn't mentioned in their report.

Are there equipment specification sheets and details on reliability and accuracy of the flow meters, probes, sensors and corresponding flow monitoring equipment?

They provided sheets following of the flow meter and level-only monitor along with typical manhole installation sheets.

How will the contractor obtain and provide replacement flow meters and parts during the term of the contract? RJN maintains a full complement of state of the art equipment, as shown in page 9, including a fleet of specially equipped field inspection vans and trucks equipped to provide rapid access for confined space entry. Maintain a minimum of 10% spare meters on the project. They will overnight materials from their Houston or St. Louis warehouse to mitigate downtime.

Are there details on Telog Enterprise software and interaction and transferring data to the City's FTP site? Data is collected using base meter configurations and data collection software and then converted into Telog EDF format. This enables data to be immediately and automatically imported into the Telog Enterprise client. The E-AIM3 module resides on the City's Telog Enterprise server that will automatically import the data from the City's dedicated FTP site.

GOAL DETERMINATION REQUEST FORM

Buyer Name/Phone	Erin D'Vincent	PM Name/Phone	Soo Koon Soon
Sponsor/User Dept.	Austin Water	Sponsor Name/Phone	972-2056
Solicitation No	EAD0128	Project Name	Flow Monitoring
Contract Amount	\$9,600,000	Ad Date (if applicable)	6/13/16 if possible, if not, 6/20/16
Procurement Type			
<input type="checkbox"/> AD – CSP <input type="checkbox"/> AD – Design Build Op Maint <input type="checkbox"/> IFB – IDIQ <input checked="" type="checkbox"/> Nonprofessional Services <input type="checkbox"/> Critical Business Need <input type="checkbox"/> Sole Source*			
<input type="checkbox"/> AD – CM@R <input type="checkbox"/> AD – JOC <input type="checkbox"/> PS – Project Specific <input type="checkbox"/> Commodities/Goods <input type="checkbox"/> Interlocal Agreement			
<input type="checkbox"/> AD – Design Build <input type="checkbox"/> IFB – Construction <input type="checkbox"/> PS – Rotation List <input type="checkbox"/> Cooperative Agreement <input type="checkbox"/> Ratification			
Provide Project Description**			
Contractor will provide flow monitoring services for the Austin Water Department			
Project History: Was a solicitation previously issued; if so were goals established? Were subcontractors/subconsultants utilized? Include prior Solicitation No.			
IFB-BV GAL0047 - no goals and no subcontracting previously			
List the scopes of work (commodity codes) for this project. (Attach commodity breakdown by percentage; eCAPRIS printout acceptable)			
96169 - 100%			
Erin D'Vincent		6/3/16	
Buyer Confirmation		Date	

* Sole Source must include Certificate of Exemption

**Project Description not required for Sole Source

FOR SMBR USE ONLY			
Date Received	6/6/2016	Date Assigned to BDC	6/6/2016
In accordance with Chapter2-9(A-D)-19 of the Austin City Code, SMBR makes the following determination:			
<input type="checkbox"/> Goals	% MBE	% WBE	
<input type="checkbox"/> Subgoals	% African American	% Hispanic	
	% Asian/Native American	% WBE	
<input type="checkbox"/> Exempt from MBE/WBE Procurement Program		<input checked="" type="checkbox"/> No Goals	

GOAL DETERMINATION REQUEST FORM

This determination is based upon the following:

- | | |
|--|---|
| <input type="checkbox"/> Insufficient availability of M/WBEs | <input type="checkbox"/> No availability of M/WBEs |
| <input type="checkbox"/> Insufficient subcontracting opportunities | <input checked="" type="checkbox"/> No subcontracting opportunities |
| <input type="checkbox"/> Sufficient availability of M/WBEs | <input type="checkbox"/> Sufficient subcontracting opportunities |
| <input type="checkbox"/> Sole Source | <input type="checkbox"/> Other |

If Other was selected, provide reasoning:

MBE/WBE/DBE Availability

There are 6 MBE's and 4 WBE's available to bid as a prime consultant.

Subcontracting Opportunities Identified

No subcontracting opportunities identified.

Counselor Name

SMBR Staff

Signature/ Date

SMBR Director or Designee

Date

Returned to/ Date:

Minority- and Women-Owned Business Enterprise (MBE/WBE) Procurement Program No Goals Utilization Plan
(Please duplicate as needed)

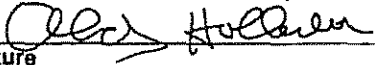
SOLICITATION NUMBER:	EAD0128
PROJECT NAME:	Wastewater Flow Monitoring Services

PRIME CONTRACTOR / CONSULTANT COMPANY INFORMATION

Name of Contractor/Consultant	RJN Group, Inc.		
Address	111 West Anderson Lane, Suite D203A		
City, State Zip	Austin, Texas 78752		
Phone Number	(512) 451-8204	Fax Number	(972) 437-2707
Name of Contact Person	P. Jeffrey Plymale		
Is Company City certified?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> MBE/WBE Joint Venture <input type="checkbox"/>		

I certify that the information included in this No Goals Utilization Plan is true and complete to the best of my knowledge and belief. I further understand and agree that the information in this document shall become part of my Contract with the City of Austin.

Alan J. Hollenbeck, PE, President and CEO
Name and Title of Authorized Representative (Print or Type)


Signature

7/14/2016
Date

Provide a list of all proposed subcontractors / sub-consultants / suppliers that will be used in the performance of this Contract. Attach Good Faith Effort documentation if non MBE/WBE firms will be used.

Sub-Contractor / Sub-Consultant	ADS, LLC		
City of Austin Certified	MBE <input type="checkbox"/> WBE <input type="checkbox"/> Ethics / Gender Code: <input checked="" type="checkbox"/> Non-Certified		
Vendor ID Code	VC0000102812		
Contact Person	Chuck Franklin	Phone Number	(281) 933-0951
Amount of Subcontract	\$539,000		
List commodity codes & description of services	96169, provide flow monitoring equipment and equipment installation/servicing		

Sub-Contractor / Sub-Consultant			
City of Austin Certified	MBE <input type="checkbox"/> WBE <input type="checkbox"/> Ethics / Gender Code: <input type="checkbox"/> Non-Certified		
Vendor ID Code			
Contact Person		Phone Number	
Amount of Subcontract	\$		
List commodity codes & description of services			

FOR SMALL AND MINORITY BUSINESS RESOURCES DEPARTMENT USE ONLY:

Having reviewed this plan, I acknowledge that the proposer (HAS) or (HAS NOT) complied with City Code Chapter 2-9A/B/C/D, as amended.

Reviewing Counselor 

Date 7/21/16

Director/Deputy Director 

Date 7-21-16